The PHOTOFACT® Servicer

SET 535 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JUNE 1961

CONTENTS PHOTOFACT SET 535

TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
SILVERTONE	
Chassis 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369	535-1
WESTINGHOUSE	
Chassis V-2411-1, V-2411-2, V-2411-3, V-2411-4, V-2411-5, V-2411-6	535-2
OTHER EQUIPMENT	
ARVIN	
30R12, 30R18 (Ch. 1.48101, 1.48102)	535-3
FIRESTONE	
4-C-45, 4-C-50	535-4
KOWA	
KT-63	535-5
LEAK	
Trough Line II	535-6
MADISON FIELDING	
Series 630	535-7
MAGNAVOX	
M600, K600, L600 . . (Record Changer)	535-8
MAGNAVOX	
Chassis 83-01-00, -10, 83-02-00, -10, 83-03-00, -10	535-9
PHILCO	
T-901BK, T-901BR	535-10
POLYRAD	
P-86	535-11
RAYTHEON	
RAY-TEL (TWR-1)	535-12
SILVERTONE	
1069, 1070, 1071, 1073, 1074, 1075, 1079, 1080, 1081, 1280, 1281, 1282, 1283 (Ch. 528.54060, 070, 071, 528.59560, 850, 851, 860)	535-13
SONY	
TR-620	535-14
WEBCOR	
ED-2150	535-15

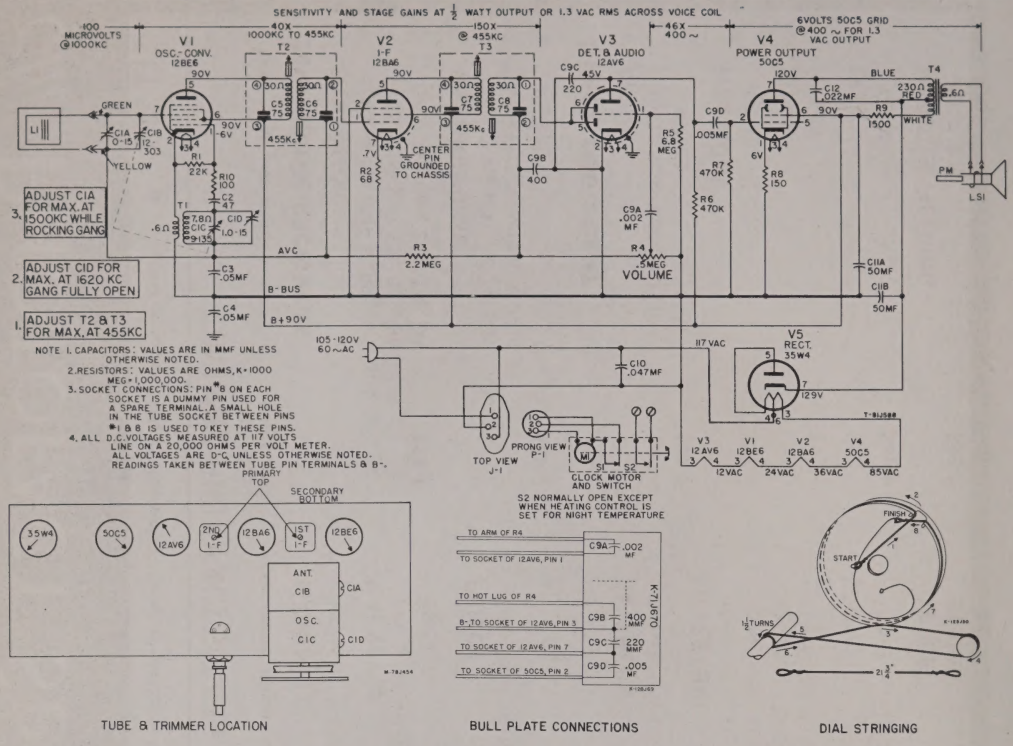
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

Airline Model
GAA-981A

General Electric Model
525 FN (Musitherm)

Webcor Models
EC1096-1A, MC1096-1A,
PC1097-1A, WC1097-1A
(CH. 14X317-1, 14X324-3)

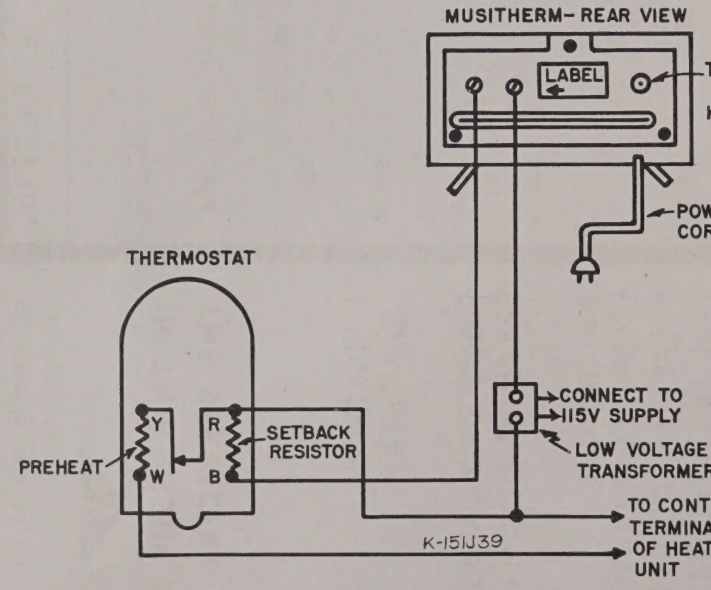

SENSITIVITY AND STAGE GAINS AT ½ WATT OUTPUT OR 1.3 VAC RMS ACROSS VOICE COIL
100 MICROVOLTS @1000KC
40X 1000KC TO 455KC
150X @ 455KC
46X 400 ~
6VOLTS 50C5 GRID @400 ~ FOR 1.3 VAC OUTPUT
V1 OSC.-CONV. 12BE6
V2 I-F 12BA6
V3 DET. & AUDIO 12AV6
V4 POWER OUTPUT 50C5
V5 RECT. 35W4
T1
T2
T3
T4
ADJUST C1A FOR MAX. AT 1500KC WHILE ROCKING GANG
ADJUST C1D FOR MAX. AT 1620 KC GANG FULLY OPEN
ADJUST T2 & T3 FOR MAX. AT 455KC
AVC
B- BUS
B+ 90V
VOLUME
CENTER PIN GROUNDED TO CHASSIS
105-120V 60~AC
117 VAC
12VAC
24VAC
36VAC
85VAC
PM
LSI
NOTE 1. CAPACITORS: VALUES ARE IN MMF UNLESS OTHERWISE NOTED.
2. RESISTORS: VALUES ARE OHMS, K=1000 MEG=1,000,000.
3. SOCKET CONNECTIONS: PIN *B ON EACH SOCKET IS A DUMMY PIN USED FOR A SPARE TERMINAL. A SMALL HOLE IN THE TUBE SOCKET BETWEEN PINS *1 & 8 IS USED TO KEY THESE PINS.
4. ALL D.C. VOLTAGES MEASURED AT 117 VOLTS LINE ON A 20,000 OHMS PER VOLT METER. ALL VOLTAGES ARE D-C UNLESS OTHERWISE NOTED. READINGS TAKEN BETWEEN TUBE PIN TERMINALS & B-.
TOP VIEW J-1
PRONG VIEW P-1
CLOCK MOTOR AND SWITCH
S2 NORMALLY OPEN EXCEPT WHEN HEATING CONTROL IS SET FOR NIGHT TEMPERATURE

TUBE & TRIMMER LOCATION

TO ARM OF R4
TO SOCKET OF 12AV6, PIN 1
TO HOT LUG OF R4
B- TO SOCKET OF 12AV6, PIN 3
TO SOCKET OF 12AV6, PIN 7
TO SOCKET OF 50C5, PIN 2
C9A .002 MF
C9B 400 MMF
C9C 220 MMF
C9D .005 MF
K-7J1670

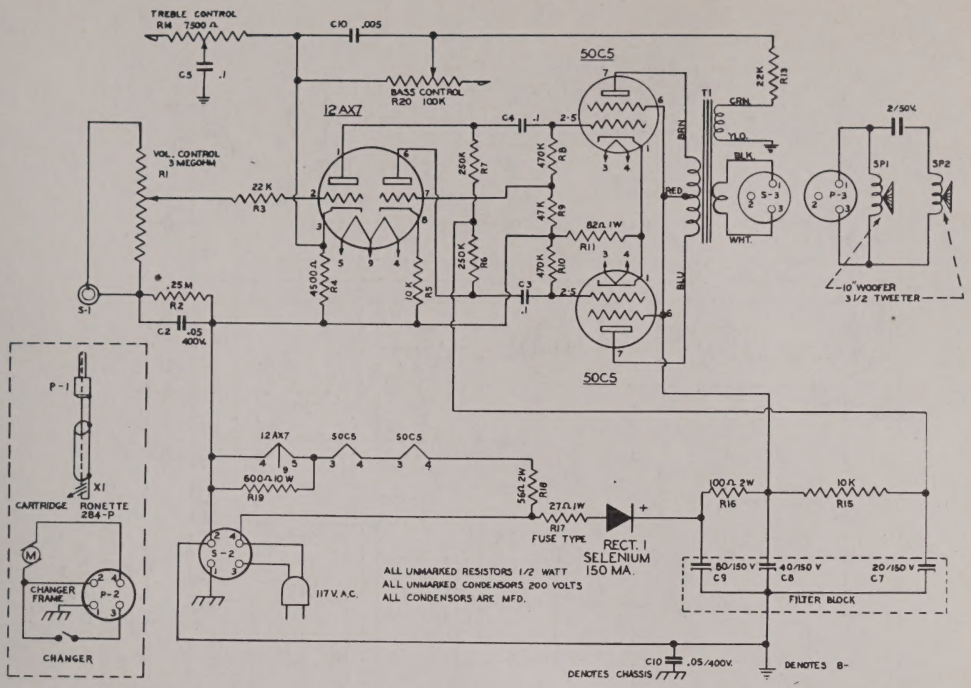
BULL PLATE CONNECTIONS

DIAL STRINGING



GENERAL ELECTRIC MODEL 525FN (MUSITHERM)

Schematic Diagram Courtesy of General Electric Company

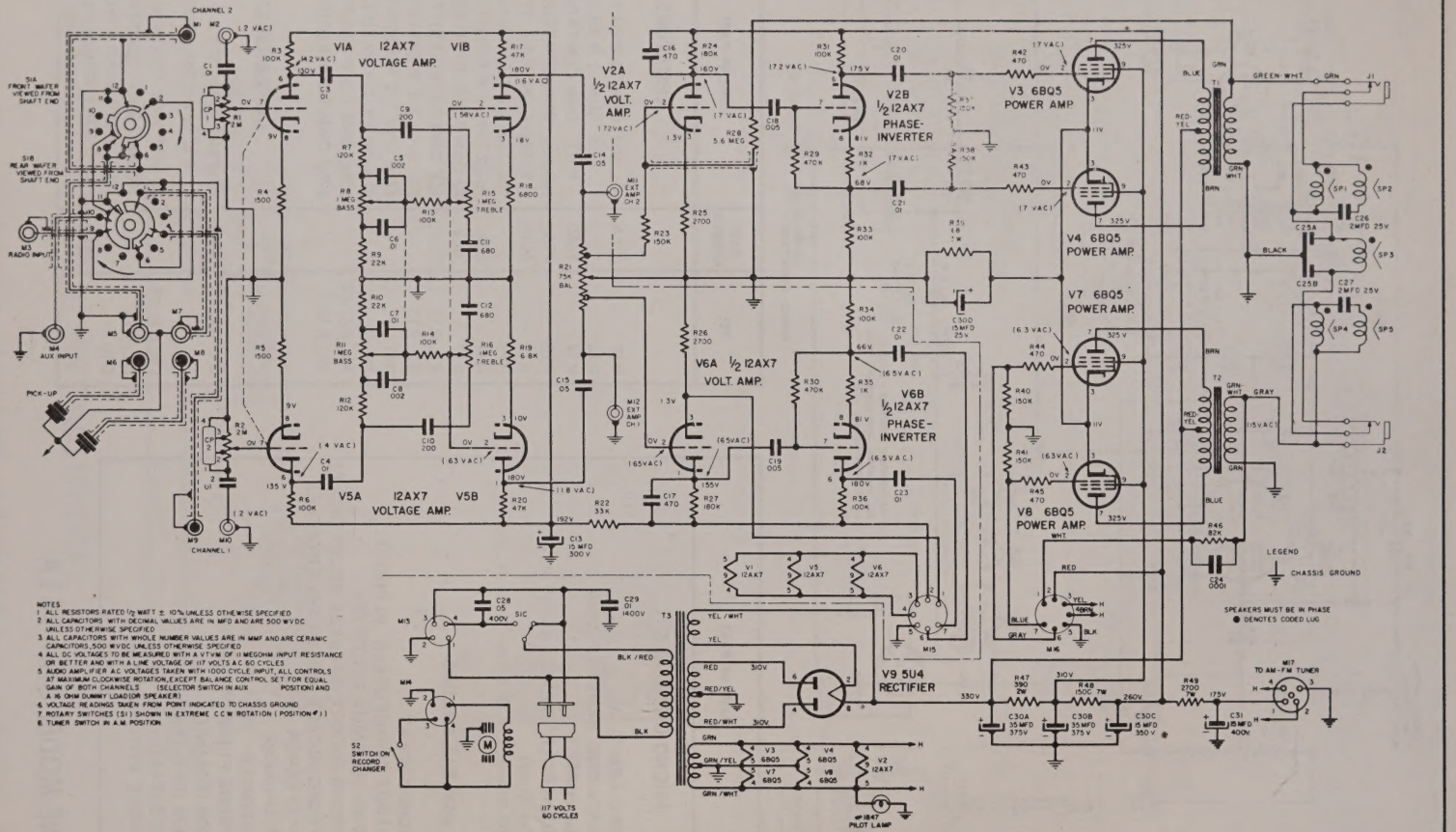


PART NUMBER	NAME OF PART
	PHONO CRYSTALS
2587	TONE ARM CARTRIDGE RONETTE 284P (Use 60-47) .001 NEEDLE - 33 1/3 / 45 R.P.M. - (Use 61-47) .003 NEEDLE - 78 R.P.M. - Use (61-48)
	MISCELLANEOUS
104A	PHONO SOCKET
1210A	OUTPUT TRANSFORMER 80 OHM SEC.
2743	150 MA SELENIUM RECTIFIER
106B	3 PRONG SOCKET (SPEAKER RECEPTACLE)
107A	4 PRONG SOCKET (MOTOR RECEPTACLE)
2624	3½" SPEAKER
2625	10" SPEAKER
2516	45 SPINDLE
307B	3 PRONG PLUG
2427	KNOB (VOLUME)
2427A	KNOB (OFF-TREBLE-ON)
2427B	KNOB (BASS)
1772	HANDLE WITH HARDWARE

REF.	PART NUMBER	NAME OF PART
		RESISTORS
R19	626A	600 OHM 10 W RESISTOR
R18		56 OHM 2 W RESISTOR
R14	408G	7500 OHM CONTROL (TREBLE)
R20	416	100,000 OHM CONTROL (BASS)
R1	401E	3 MEG CONTROL (VOLUME)
R16		100 OHM 2 W RESISTOR
R11	628	75-82 OHM 2 W RESISTOR
R17	542	27 OHM FUSE TYPE RESISTOR
R5, R15		10K OHM 1/2 W RESISTOR
R3, R13		22K OHM 1/2 W RESISTOR
R4		4700 OHM 1/2 W RESISTOR
R9		47K OHM 1/2 W RESISTOR
R2, R6, R7		270K OHM 1/2 W RESISTOR
R8, R10		470K OHM 1/2 W RESISTOR
		CONDENSERS
C9, C8, C7	1018	80-40-20-MFD/150V FILTER CONDENSER
C3, C4, C5		.1 MFD 200V CONDENSER
C2, C11		.05 MFD 200V CONDENSER
C10		.005 MFD DISCAP CONDENSER
	830	2 MFD 200 V CONDENSER

AIRLINE MODEL GAA-981A

Information Courtesy of Montgomery Ward & Company



NOTES
1. ALL RESISTORS RATED ½ WATT ± 10% UNLESS OTHERWISE SPECIFIED
2. ALL CAPACITORS WITH DECIMAL VALUES ARE IN MFD AND ARE 500 WVDC UNLESS OTHERWISE SPECIFIED
3. ALL CAPACITORS WITH WHOLE NUMBER VALUES ARE IN MMF AND ARE CERAMIC CAPACITORS, 500 WVDC UNLESS OTHERWISE SPECIFIED
4. ALL DC VOLTAGES TO BE MEASURED WITH A VTVM OF 11 MEGOHM INPUT RESISTANCE OR BETTER AND WITH A LINE VOLTAGE OF 117 VOLTS A.C. 60 CYCLES
5. AUDIO AMPLIFIER A.C. VOLTAGES TAKEN WITH 1000 CYCLE INPUT, ALL CONTROLS AT MAXIMUM CLOCKWISE ROTATION, EXCEPT BALANCE CONTROL SET FOR EQUAL GAIN OF BOTH CHANNELS (SELECTOR SWITCH IN AUX POSITION) AND A 16 OHM DUMMY LOAD (OR SPEAKER)
6. VOLTAGE READINGS TAKEN FROM POINT INDICATED TO CHASSIS GROUND
7. ROTARY SWITCHES (S1) SHOWN IN EXTREME C.C.W. ROTATION (POSITION #1)
8. TUNER SWITCH IN A.M. POSITION

WEBCOR MODELS EC1096-1A, MC1096-1A, MC1097-1A, WC1097-1A (CH. 14X317-1, 14X324-3)

Schematic Diagram Courtesy of Webcor, Inc.

PHOTOFACT® Folder with CIRCUITRACE®

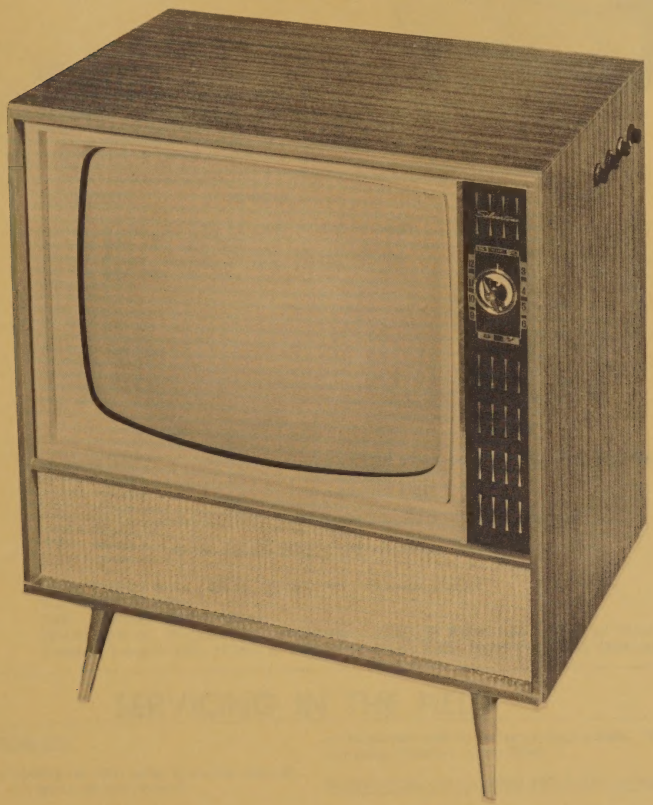
SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369



MODEL 1134 (CHASSIS 528.50356)

SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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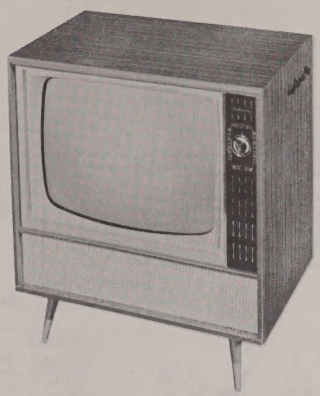
SET 535 FOLDER 1

SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

MODEL 1134 (CHASSIS 528.50356)



CAUTION

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	SILVERTONE MODELS	CHASSIS
	PC-144, PC-146, PC-1100, PC-1102, PC-1110, PC-1120	456.50354, 358, 360, 364, 366
	144, 146, 1100, 1102, 1110, 1120	528.50354, 358, 360, 364, 366
	PC-145, PC-147, PC-1101, PC-1103, PC-1111, PC-1121	456.50354, 357, 359, 363, 365
	145, 147, 1101, 1103, 1111, 1121	528.50354, 357, 359, 363, 365
	PC-1126	456.50358, 360, 364, 366, 369
	1126	528.50358, 360, 364, 366, 369
	PC-1127	456.50357, 359, 363, 365
	1127	528.50357, 359, 363, 365
	PC-1134, PC-1136	456.50348, 356, 362
	1134, 1136	528.50348, 356, 362
	PC-1135, PC-1137	456.50349, 355, 361
	1135, 1137	528.50349, 355, 361

TUNER	CHASSIS
95-240-0 (VHF)	456/528.50354, 356, 358, 360, 362, 364, 366
95-134-0 (VHF)	456/528.50369
95-195-0 (VHF)	456/528.50348
(VHF - 95-187-0) (UHF - 95-186-0) 95-185-0 (UHF-VHF)	456/528.50349, 355, 359, 361, 365
(VHF - 95-184-0) (UHF - 95-183-0) 95-182-0 (UHF-VHF)	456/528.50357, 363

SUPPLIER	Sears, Roebuck & Co., 925 So. Homan Ave. , Chicago, Illinois
TYPE SET	Television Receiver
TUBES	VHF - Fourteen, UHF - Fifteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING (VHF) 140 Watts, 1.35 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 4 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch up the VHF Oscillator, it is necessary to remove the rear cover.

FOCUS

The focus may be varied by connecting the lead from pin 6 of the picture tube to various voltage points. (For location, see photo "Cabinet - Rear View".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by adjusting a metallic sleeve, located between the yoke and the picture tube neck, in or out of the yoke.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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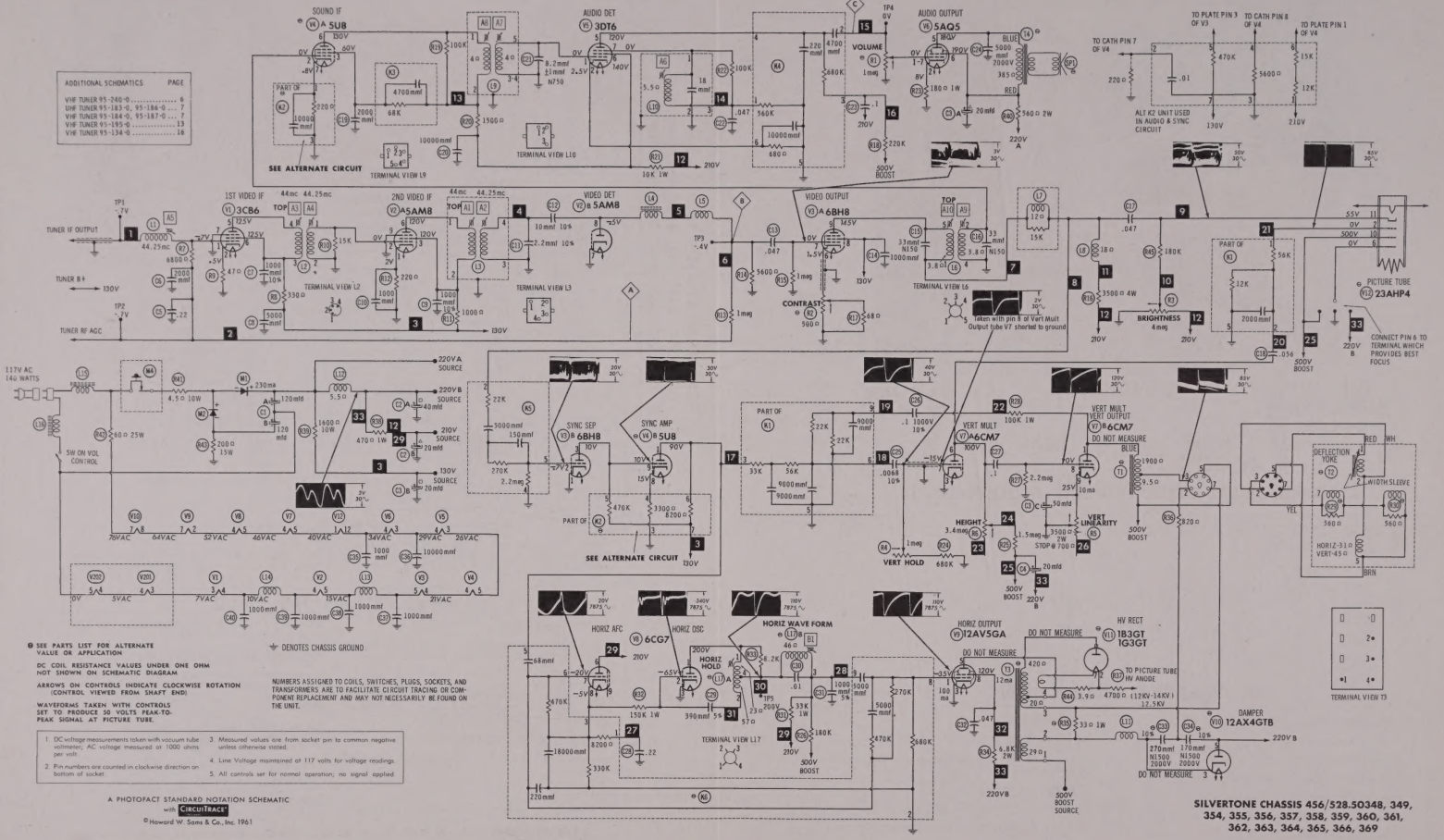
ADDITIONAL SCHEMATICS PAGE
VHF TUNER 95-240-0 6
UHF TUNER 95-183-0, 95-186-0 ... 7
VHF TUNER 95-184-0, 95-187-0 ... 7
VHF TUNER 95-195-0 13
VHF TUNER 95-134-0 16
SOUND IF
AUDIO DET 3DT6
AUDIO OUTPUT 5AQ5
VOLUME
SEE ALTERNATE CIRCUIT
1ST VIDEO IF 3CB6
2ND VIDEO IF 5AM8
VIDEO DET 5AM8
VIDEO OUTPUT 6BH8
TUNER IF OUTPUT
TUNER B+ 130V
TUNER RF AGC
CONTRAST
BRIGHTNESS
PICTURE TUBE 23AHP4
CONNECT PIN 6 TO TERMINAL WHICH PROVIDES BEST FOCUS
117V AC 140 WATTS
SW ON VOL CONTROL
SYNC SEP 6BH8
SYNC AMP 5U8
VERT MULT 6CM7
VERT OUTPUT 6CM7
VERT HOLD
HEIGHT
VERT LINEARITY
DEFLECTION YOKE
HORIZ AFC 6CG7
HORIZ OSC
HORIZ HOLD
HORIZ WAVE FORM
HORIZ OUTPUT 12AV5GA
HV RECT 1B3GT 1G3GT
TO PICTURE TUBE HV ANODE
DAMPER 12AX4GB
TERMINAL VIEW T3
TERMINAL VIEW L9
TERMINAL VIEW L10
TERMINAL VIEW L2
TERMINAL VIEW L3
TERMINAL VIEW L6
TERMINAL VIEW L17
Taken with pin 8 of Vert Mult Output tube V7 shorted to ground
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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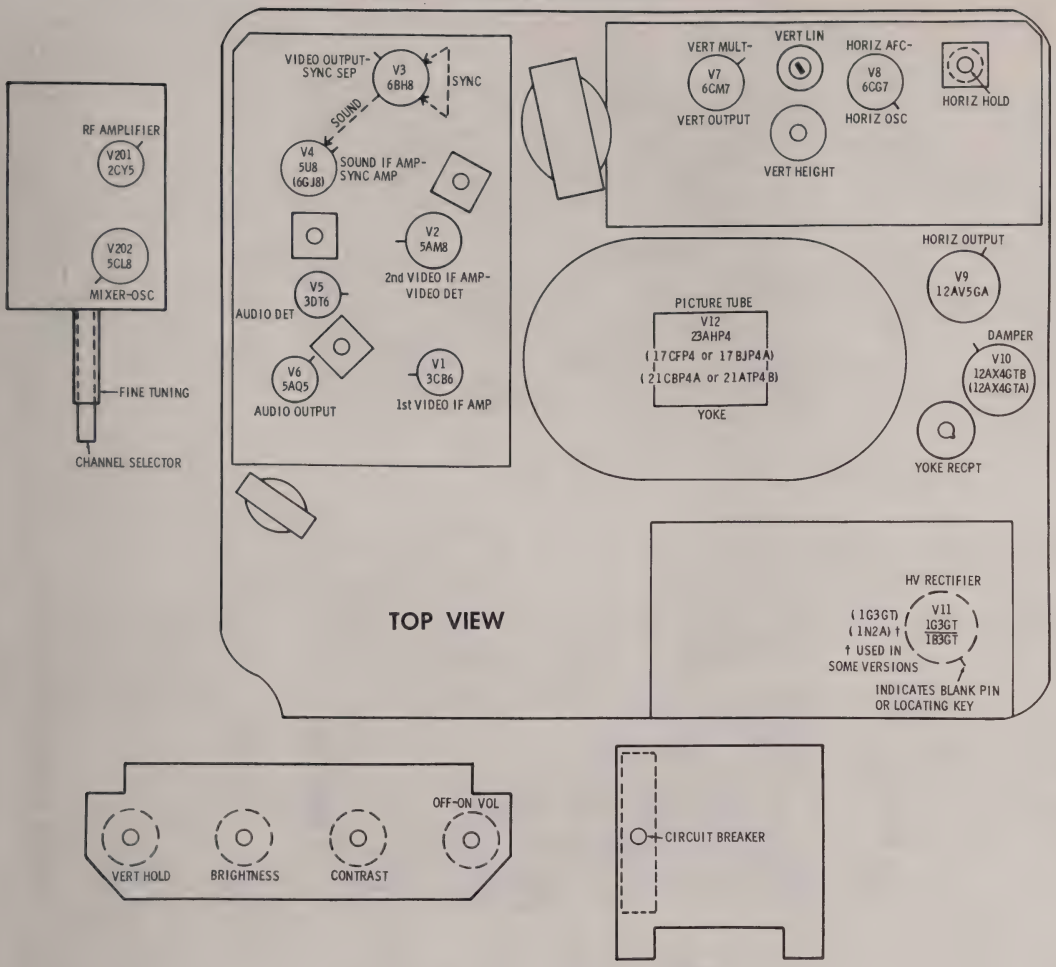
SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

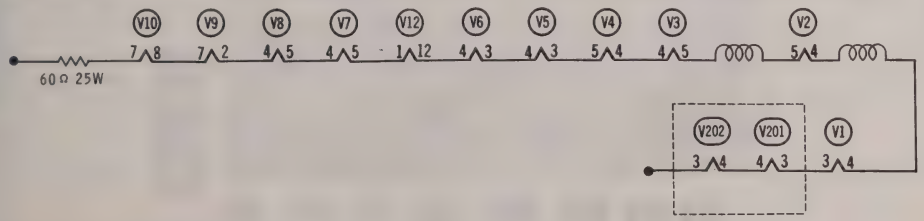
POWER SUPPLY FAILURE
No raster, no sound Circuit Breaker, Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V12
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, Rectifiers (B+)
Vert. off freq. V7
Horiz. off freq. V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V12
Has pic, no sound V4, V5, V6

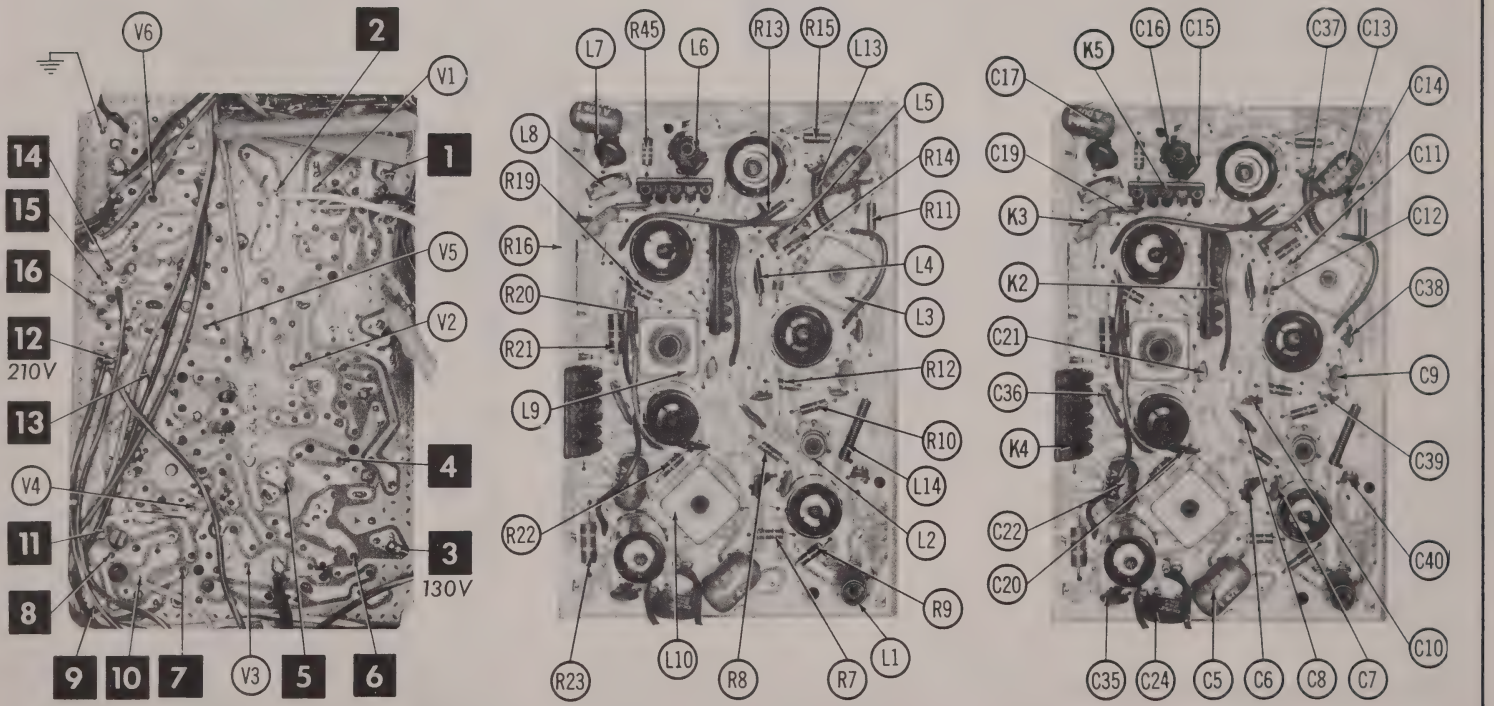
SYNC FAILURE
No vert. sync V3, V4
No horiz. sync V3, V4
No vert. or horiz. sync V3, V4

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

FOLDER 1



A Howard W. Sams CIRCUITRACE® Photo

MAIN PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓐ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Short the antenna terminals together but not to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to pin 2 (grid) of 2nd Video IF Amp. Low side to chassis.	44.0MC (10MC Swp.)	44.0MC	Any non-interfering channel	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. (Across Video Det. load.)	A1	Preset A2 fully counterclockwise. Adjust A1 for maximum gain at 44.0MC as in Fig. 1.
2.	"	"	43.2MC 45.3MC	"	"	A2	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.
3.	High side thru .001mfd to pin 1 (grid) of 1st Video IF. Amp. Low side to chassis.	"	44.0MC	"	"	A3	Preset A4 fully counterclockwise. Adjust A3 for maximum gain at 44.0MC.
4.	"	"	43.6MC 45.0MC	"	"	A4	Adjust for maximum gain and symmetry of response similar to Fig. 3.with markers as shown. If necessary, repeat step 1 thru 4 for desired response.
5.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	44.25MC	"	"	Mixer Plate Coil	Detune A5 by turning slug out. Adjust Mixer Plate Coil for maximum gain at 44.25MC.
6.	"	"	42.75MC 43.6MC 45.0MC 45.75MC	"	"	A5	Adjust for maximum gain and symmetry of response similar to Fig. 4 with markers as shown. Retouch Mixer Plate Coil and A5 until desired response is obtained.

SOUND IF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	High side thru .05mfd to point Ⓑ. Low side to chassis. (.1V output.)	4.5MC (400∿ FM 15KC swp.)	Any non-interfering channel	AC probe to point Ⓒ. Common to chassis.	A6, A7	Adjust for maximum deflection. If two peaks are found, use the greater peak.
8.	Change output to 500 microvolts.	"	"	"	A8, A9	Adjust for maximum deflection. Retouch A7 for maximum deflection.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust A10 for MINIMUM beat interference.

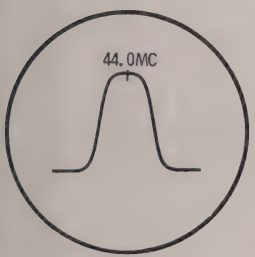


FIG.1

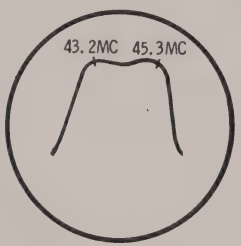


FIG.2

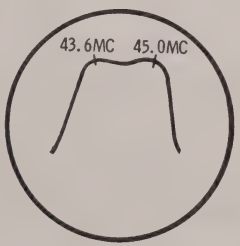


FIG.3

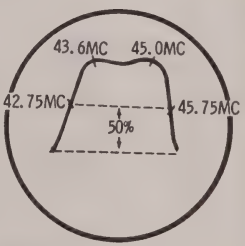
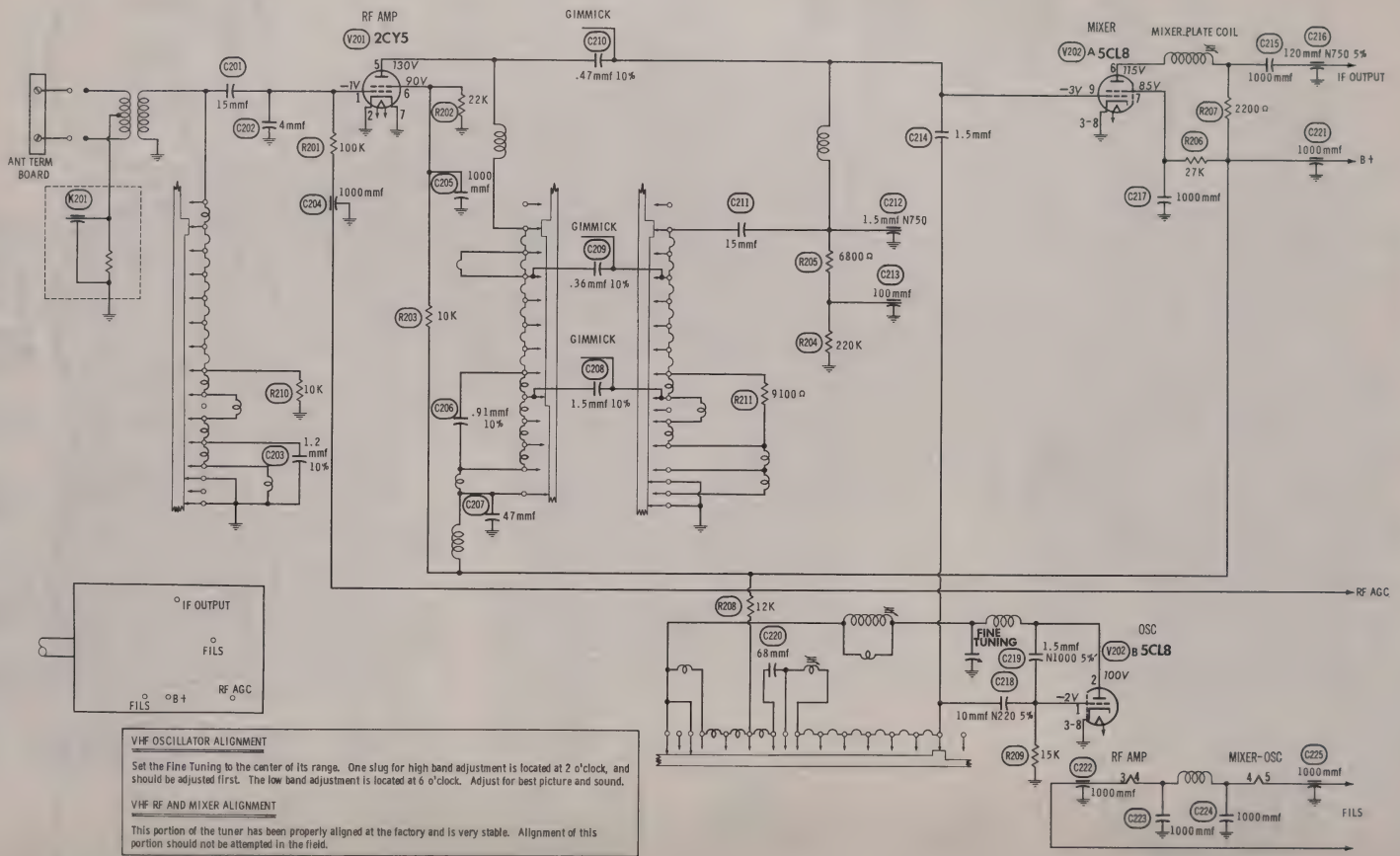


FIG.4

ALIGNMENT IDENTIFICATION PHOTO ON PAGE 18

SET 535 FOLDER 1



VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range. One slug for high band adjustment is located at 2 o'clock, and should be adjusted first. The low band adjustment is located at 6 o'clock. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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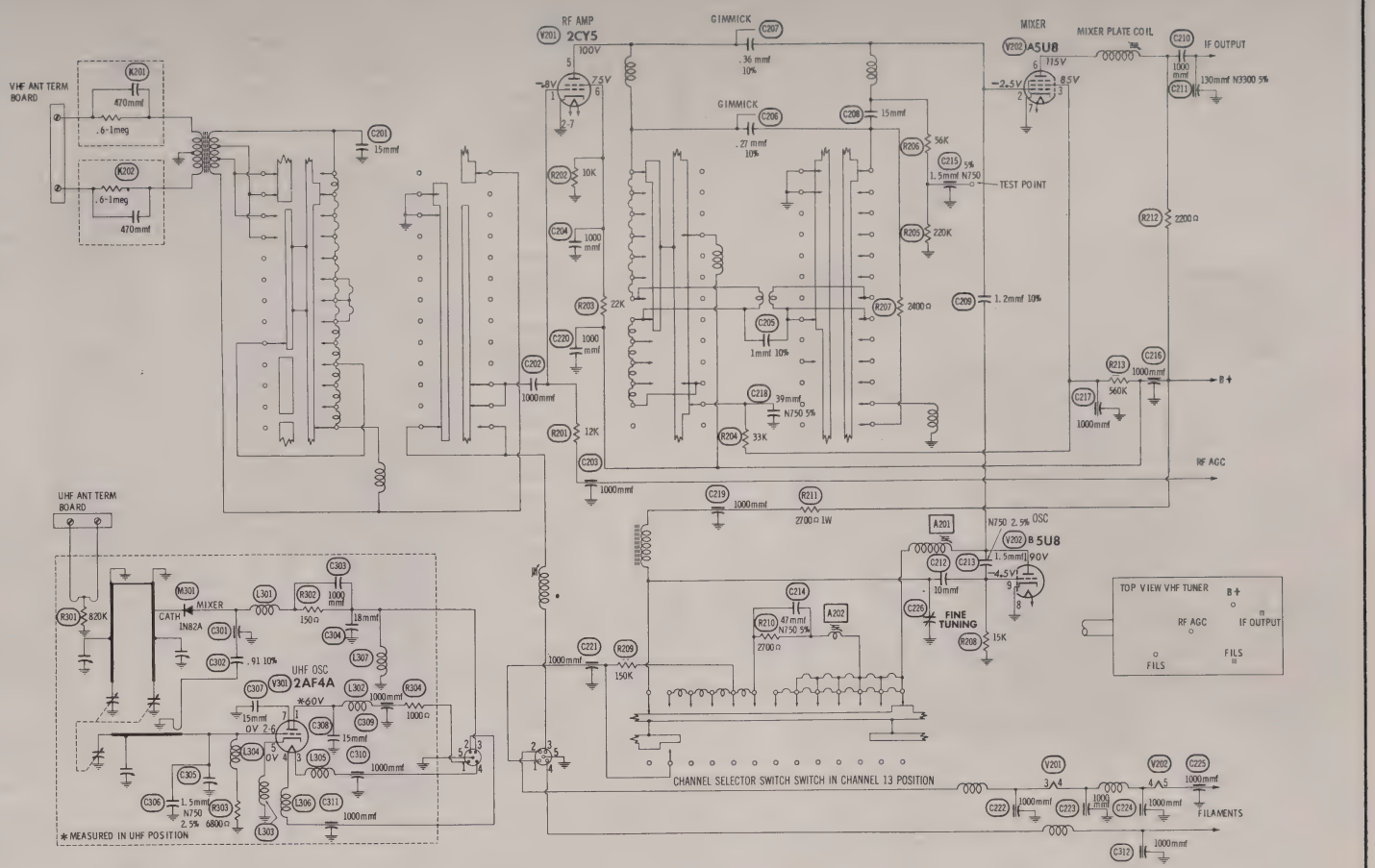
VHF TUNER 95-240-0



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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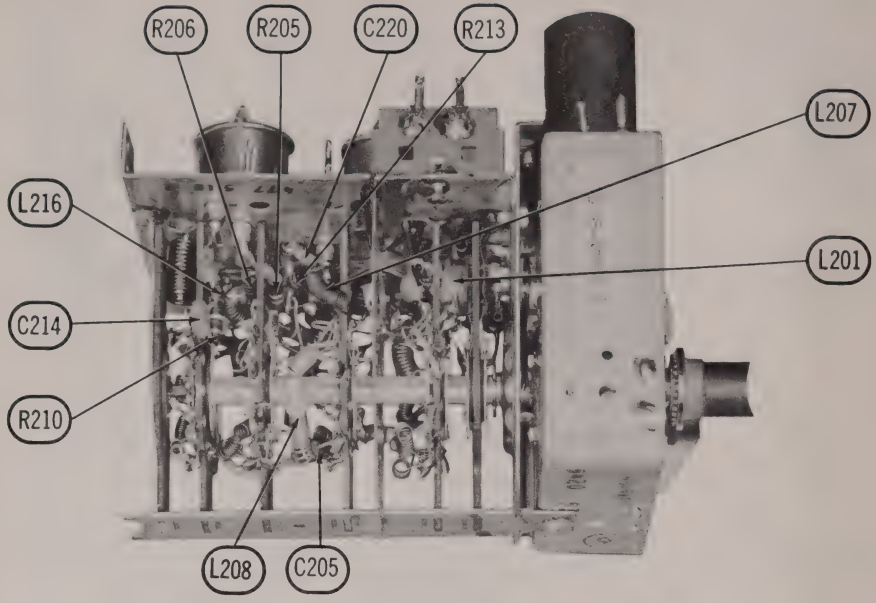
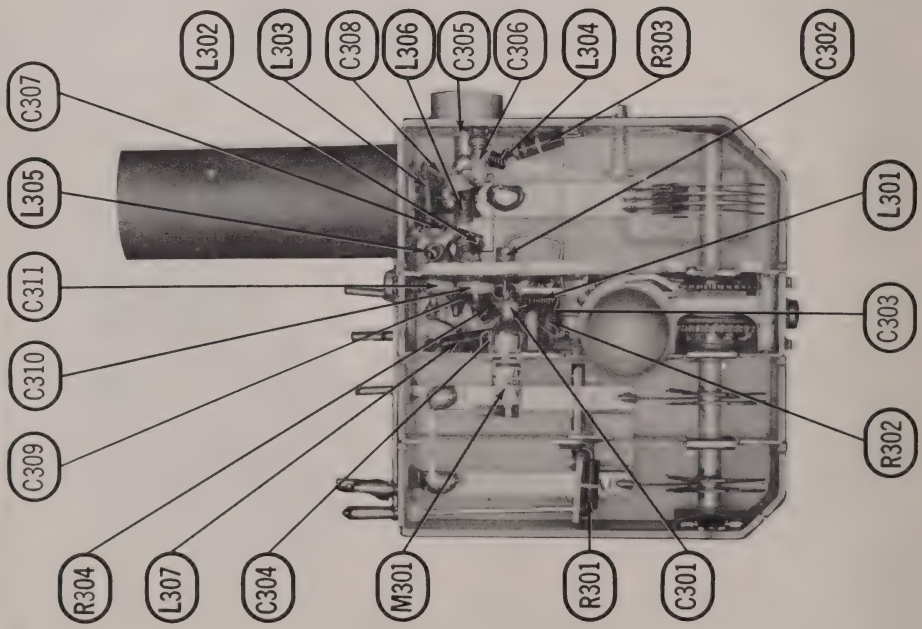
UHF TUNER 95-183-0 & VHF TUNER 95-184-0 (UHF-VHF Combined 95-182-0)
UHF TUNER 95-186-0 & VHF TUNER 95-187-0 (UHF-VHF Combined 95-185-0)

SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369



UHF TUNER 95-186-0 & VHF TUNER 95-187-0—LEFT SIDE
(UHF-VHF TUNER COMBINED 95-185-0)



UHF TUNER 95-186-0

VHF TUNER PARTS LIST AND DESCRIPTIONS

95-187-0
95-184-0

TUBES

ITEM No.	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • USE	TYPE
V301	RF Amp.	2CY5
V302	Mixer-Osc.	5U8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	15		NPO-DE 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C203	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C303	1000		EF-001	MFT-1000		CCF-102	CT280A	
C204	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C205	1 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C206	.27 10%	#2101-278						
C207	36 10%	#2101-368						
C208	15		NPO-DE 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C209	1.2 10%	#2101-129						10TCC-V12
C210	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C211	130 N3300 5%	#263-131						
C212	10		NPO-DE 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C213	1.5 N750 2.5%	#174-159		DTZ-47	C10Q47U		CNT-447	10TCU-Q47
C214	47 N750 5%							
C215	1.5 N750 5%	#259-159						
C216	1000		EF-001	MFT-1000		CCF-102	CT280A	
C217	1000		EF-001	MFT-1000		CCF-102	CT280A	
C218	39 N750 5%		TCZ-39		C10Q39U		CNO-439	10TCU-Q39
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	
C220	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C221	1000		EF-001	MFT-1000		CCF-102	CT280A	
C222	1000		EF-001	MFT-1000		CCF-102	CT280A	
C223	1000		EF-001	MFT-1000		CCF-102	CT280A	
C224	1000		EF-001	MFT-1000		CCF-102	CT280A	
C225	1000		EF-001	MFT-1000		CCF-102	CT280A	
C226		#5322-506						

Silvertone Part No.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	12K			
R202	10K			
R203	33K			
R204	33K			
R205	220K			
R206	56K			
R207	2400Ω			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R208	15K			
R209	150K			
R210	2700Ω			
R211	2700Ω 1W			
R212	2200Ω			
R213	560K			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Silvertone PART No.	REPLACEMENT DATA	
K201	Antenna Filter	470mmf, .6-1meg	332-1	Centralab	RC-471
K202	Antenna Filter	470mmf, .6-1meg	332-1	Centralab Sprague	RC-471 AC1-1

COILS (RF-IF)

ITEM No.	USE	Silvertone PART No.	NOTES
L201	Ant. Trans.	2309-4	
L202	UHF IF Input	5251-7	
L203	RF Choke	300-3	
L204	Ant. Coils	2878-502	Channel 2-13, Includes Wafer Assy.
L205	RF Choke	301-8	
L206	RF Coils	2877-502	Channel 2-13, Includes Wafer Assy.
L207	RF Choke	362-7	
L208	Low Band Coupling Trans.	5380-5	
L209	Mixer Grid Coils	2878-503	Channel 2-13, Includes Wafer Assy.

ITEM No.	USE	Silvertone PART No.	NOTES
L210	RF Choke	363-7	
L211	RF Choke	301-8	
L212	Mixer Plate	5356-5	
L213	High Band Osc. Adj.	53SL-30	
L214	Low Band Osc. Adj.	53SL-31	
L215	Osc. Coils	2879-502	Channel 2-13, Includes Wafer Assy.
L216	RF Choke	1894-9	
L217	Fil. Choke	301-10	
L218	Fil. Choke	310-8	

MISCELLANEOUS

ITEM No.	PART NAME	Silvertone PART No.	NOTES
	Selector Shaft	5333-534	Assembly for VHF-UHF Tuner #195-185-0
	Selector Shaft	5333-533	Assembly for VHF-UHF Tuner #195-183-0

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	MODEL NO.	PC144, 144	PC145, 145	PC146, 146	PC147, 147	PC1100, 1100	PC1101, 1101	PC1102, 1102	PC1103, 1103	PC1110, 1110	PC1111, 1111	PC1120, 1120	PC1121, 1121	PC1126, 1126	PC1127, 1127	PC1134, 1134	PC1135, 1135	PC1136, 1136	PC1137, 1137
Window-Picture (Safety glass)	48-137-0		X	X																
Window- "	48-116-0				X	X														
Window- "	48-152-0						X	X	X	X										
Window- "	48-148-0										X	X	X	X						
Window- "	48-163-0																X	X	X	X
Mask-Picture Tube	40-2-4				X	X														
Mask- "	40-24-4																X	X	X	X
Knob-VHF Channel Selector	52-1299-0		X																	
Knob- "	52-678-0			X																
Knob- "	52-1491-0				X															
Knob- "	52-674-0					X														
Knob- "	52-1304-0						X		X											
Knob- "	52-1291-0							X		X										
Knob- "	52-1360-0										X		X							
Knob- "	52-1359-0											X		X						
Knob- "	52-1489-0																X		X	
Knob- "	52-1488-0																	X		X
Knob-UHF Channel Selector	52-680-0			X		X														
Knob- "	52-1289-0							X		X										
Knob- "	52-1366-0											X	X					X		X
Knob-UHF Chan. Indicator	52-676-0			X																
Knob- "	52-675-0					X														
Knob- "	52-1290-0							X		X										
Knob- "	52-1361-0												X	X				X		X
Knob-Fine Tuning	52-679-0		X		X															
Knob- "	52-665-0			X		X														
Knob- "	52-1292-0						X		X											
Knob- "	52-1288-0							X		X										
Knob- "	52-1365-0										X		X							
Knob- "	52-1364-0											X		X				X		X
Knob- "	52-1499-0																X		X	
Knob-Volume	52-661-0		X	X	X	X														
Knob- Volume, Contrast, Brightness, Vertical	52-1295-0						X	X	X	X										
Knob- "	52-1357-0										X	X	X	X						
Knob-Volume	52-1486-0																X	X	X	X
Knob-Contrast	52-662-0		X	X	X	X														
Knob- "	52-1483-0																X	X	X	X
Knob-Brightness	52-1485-0																X	X	X	X
Knob- "	52-794-0		X	X	X	X														
Knob-Vertical Hold	52-1484-0																X	X	X	X
Knob- "	52-663-0		X	X	X	X														
Cabinet	42-177-0		X	X																
Cabinet	42-70-0				X	X														
Cabinet	42-178-0						X	X												
Cabinet	42-201-0								X	X										
Cabinet	42-175-0										X	X								
Cabinet	42-176-0												X	X						
Cabinet-With Wooden Rail	42-234-0																X	X		
Cabinet-With Metal Rail	42-247-0													*			X	X		
Cabinet-With Wooden Rail	42-235-0																		X	X
Cabinet-With Metal Rail	42-248-0																		X	X
Handle-Carrying	49-94		X	X																
Handle- "	49-518						X	X	X	X										
Leg-Cabinet	49-606												X	X						
Leg-Rear Mahogany	49-771																X	X	X	X
Leg-Rear Blond	49-773																X	X	X	X
Leg-Front Blond	49-772																X	X	X	X
Leg-Front Mahogany	49-770																X	X	X	X

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • USE	TYPE
V1	1st Video IF Amp.	3CB6
V2	2nd Video IF Amp. - Video Detector	5AM8
V3	Video Output - Sync Sep.	6HS8
V4	Sound IF Amp. - Sync Amp.	5U8 (6GJ8) *
V5	Audio Detector	5DT6
V6	Audio Output	5AQ5
V7	Vert. Mult. - Vert. Output	6CM7
V8	Horiz. AFC - Horiz. Osc.	6CG7
V9	Horiz. Output	12AV6GA
V10	Damper	12AX4GTB (12AX4GTA)*
V11	HV Rectifier	1G3GT/1B3GT (1G3GT)* Note 1

* Alternate.

Note 1 Some versions use 1N2A in this application.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: SILVERTONE PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V12	23AEP4 17CFP4 17BJP4A 21CBP4A 21ATP4B	17CFP4 ① 17BJP4/21ATP4A ① 21CBP4A ①	23AEP4 ① 17CFP4 ① 21CBP4A ①	17CFP4 ① 21CBP4/21CBP4A ①	23AEP4 ② 17CFP4 ② 21CBP4/21CBP4A ②	① Aluminized ② Silver Screen "86"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT.	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	130	150	18-50-5	PR2-050	BR15015 †	TC849	TD-150-150†	TVAS-2466 *	
B	130	150							
C2A	40	300	18-54-3	AFH3-28-30	EB0254	FP227, 3	TMD-2310	TVLS-2774 *	
B	20	300							
C3A	20	300	18-52-3	AFH3-138	B0400 BR505	FP366	TMD-2295 TD-50-50	TVLS-3751.2 *	
B	20	300							
C	50	50							
C4	30	350	18-76-8	PR87560		TCN3520		TVANS-1608.1 *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use two units.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.22 200V		P288N-22		CUBP223	2DP-4-224	GEM-2022	2TM-P22
C6	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C7	D1-1000 10%		D1-1000	DD-102	PM6D1	CCD-102	GP210	10TS-D10
C8	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-350	5HK-D50
C9	1000 10%		D1-1000	DD-102	PM6D1	CCD-103	GP210	10TS-D10
C10	1000		BPD-001	DD-102	BYA10D1	CCD-103	B-310	5HK-D10
C11	2.2 10%		NPO-SI 22	TCZ-2R2	C10Y22C	CCTO-2R2	CNO-522	10TCC-V22
C12	10 10%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C13	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C14	1000		BPD-001	DD-102	BYA10D1	CCD-103	B-310	5HK-D10
C15	33 N150							10TCP-Q33
C16	33 N150							10TCP-Q33
C17	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C18	.056 400V		P884M-056		DPM6S56	4DP-3-563	GEM-4156	6PS-S56
C19	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-310	5HK-S10
C21	5.5 N750 ±1mmf				C10Y82U			
C22	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C23	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-4101	4TM-P10
C24	5000 2000V			DD30-562	HVC20D5	3CCD-502	3HV-247	BL-D50
C25	.0068 600V 10%		V84C6D68-10%		PM6D6S	6DP-1-682	GEM-16268	6TM-D68
C26	.1 1000V 10%				DPM8S1S1		GEM-1061	10TM-P10
C27	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-4101	4TM-P10
C28	.22 200V		P288N-22		CUB2P22	2DP-4-224	GEM-3022	2TM-P22
C29	390 5%		1469-00039		5HS7S9	CM-19B-391K	MCB243	M8-S39
C30	.01 600V		P88N-01	D6-103	CUD6S1	6DP-2-103	GEM-611	6TM-P10
C31	1000 5%		1469-001		5HS2S1	CM-19B-102J	MCJ235	M8-S1
C32	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C33	270 † 2000V N1500 10%	#15-271316						
C34	170 † 2000V N1500 10%	#15-171316						
C35	1000		BPD-001	DD-103	BYA10D1	CCD-103	B-310	5HK-D10
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-310	5HK-S10
C37	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C38	1000		BPD-001	DD-103	BYA10D1	CCD-103	B-310	5HK-D10
C39	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	1000		BPD-001	DD-103	BYA10D1	CCD-103	B-310	5HK-D10

Silvertone Part Number.
† Values may vary. Replace with original value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	24-351-0 ①	B-70-S	A47-1meg-Z	Q13-137	TA16L	Volume
B	Shaft			Not Req.	K3S-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	T6-1	U5-76	Power Off-On
R2A	500Ω	½	24-162-1 ②	B-4	A47-500-S	Q11-103	U3	Contrast
B	Shaft			Not Req.	K3S-3	Not Req.	Not Req.	
R3A	4meg	½	24-150-1	B-68	A47-4meg-S	B11-540	TA54L	Brightness
B	Shaft			Not Req.	K3S-3	6K1	Not Req.	
R4A	1meg	½	24-152-1	B-69	A47-1meg-S	Q11-137	TA16L	Vert. Hold
B	Shaft			Not Req.	K3S-3	Not Req.	Not Req.	
R5	3500Ω 2(WW) TOOO Stop		24-153-1				110-3000 *	Vert. Linearity
R6	3.4meg	½	24-140-1					Height

① Chassis 456/528.50363, 64, 65, 66, 69 use Part #24-460.
② Chassis 456/528.50354, 57, 58, 59, 60, 63, 64, 65, 66, 69 use Part #24-76-1.
* Use 680Ω 2W Resistor in series with terminal.

SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

FOLDER 1

TV PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	6800Ω			
R8	330Ω			
R9	47Ω			
R10	15K			
R11	1000Ω			
R12	220Ω			
R13	10meg			
R14	5600Ω			
R15	1meg	PW5-3500	5W-8Q-3500	
R16	3500Ω 4W			
R17	68Ω			
R18	820K			
R19	820K			
R20	18kΩ			
R21	10K 1W			
R22	100K			
R23	180Ω 1W			
R24	680K			
R25	1.5meg			
R26	180K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R27	2.2meg			
R28	100K 1W			
R29	5600Ω 2W			
R30	5600Ω 1			
R31	33K 1W			
R32	150K 1W			
R33	8200Ω			
R34	6800Ω 2W			
R35	33Ω 1W			
R36	68Ω			
R37	470Ω			
R39	4700 1W			
R39	1800Ω 10W	PW10-1800	10W-8Q-1800	
R40	560Ω 2W			
R41	4.5Ω 10W	FR-5.0	FZ- 4.7	
R42	80Ω 25W	PW30-80	30W-80	
R43	200Ω 10W	PW15-200	15W-8Q-200	
R44	3.9Ω			
R45	180K			

① Values may vary. Replace with original value.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	Vert. Blanking & Integrator	2000mmf, 9000mmf, 9000mmf, 9000mmf, 15K, 56K	13-33-3	Centralab PC-395 Sprague VY-19
K2	Sound IF Cath. & Sync Amp. Grid	10000mmf, 820Ω, 3300Ω, 8200Ω, 470K	13-31-5 Note 1	
K3	Sound IF Screen	4700mmf, 68K	13-31-3	
K4	Audio Detector Network	230mmf, 4700mmf, 10000mmf, 560K, 680Ω, 560K	13-32-5	
K5	Sync Sep. Grid	150mmf, 5000mmf, 22K, 270K, 2.2meg	13-9-5	
K6	Horiz. AFC, Osc.	68mmf, 820mmf, 5000mmf, 5000mmf, 18000mmf, 8200Ω, 270K, 330K, 470K, 470K, 680K	13-30-3 Note 2	

Note 1. Some versions use Component Combination Part #13-31-5 (and 220Ω Resistor from Pin 7 of V4A to chassis.)

Note 2. Some versions may use Component Combination Part #13-31-5 in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workmen TV PART No.	NOTES
L1	1st Video IF	10-36-3					① Wound on 15K Resistor.
L2	2nd Video IF	10-37-3					* Parallel with 15K Resistor.
L3	3rd Video IF	10-38-3					
L4	RF Choke (13ch)	10-65-1	SC-566	4622	RTC-8523	T680	
L5	Peaking (60ch)	10-148-1	TV-193	6110	RTC-8573	T338	
L6A	4.5MC Trap	10-153-1					
B	1st Sound IF						
L7	Peaking (13Tch)	10-66-1 ①	TV-198 *	6130 *	RTC-8576 *	T316 *	
L8	Peaking (26Tch)	10-147-1	TV-198	6130	RTC-8576	T347	
L9	2nd Sound IF	15-23-3					
L10	Quadrature	10-17-3					
L11	RF Choke (2.6ch)	10-136-1	SW-630	4606	RTC-8517	T857	
L12	RF Choke (60ch)	10-64-1	TV-193	6110	RTC-8573	T338	
L13	Fil. Choke (lch)	10-156-1	SC-561	4602	RTC-8515	T855	
L14	Fil. Choke (lch)	10-156-1	SC-561	4602	RTC-8515	T855	
L15	Line Choke (42ch)	10-149-1	TV-180	6176	RTC-8593	T301	
L16	Line Choke (60ch)	10-149-1	TV-180	6176	RTC-8593	T301	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	Workman TV PART No.
L17A	Horiz. Osc.	10-30-5 ①							
B	Horiz. Waveform								

① Adjustment Rod Part #79-304-3.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
T1	Vert. Output	B80-1-2G	A-3824 ①		VO-101 ②	26S19	A-138X	
	Alt. Vert. Output	80-1-2						
	Alt. Vert. Output	80-1-2						
T2	Yoke (Horiz. 21MH) (90°) (Vert. 39MH)	D80-17-4B	MDF-92 ③ ④	PCM-2045 ③ ④	DY-16A ③ ④	Y-16 ③ ④	Y-43 & NW1 ③ ④	
	Alt. Yoke	80-5-4						
	Alt. Yoke	80-17-4						
	Yoke Clamp	32-163-3						
	Yoke Clamp	32-154-3						
	Rear Cover and Centering Device	83-936						
	Alt. Centering Device	83-1034						
	Width Device	83-1334						
T3	Horiz. Output	HVO146				FLY-168	D-161	
	Alt. Horiz. Output	80-1-3						

① Cut and tape blanking lead.
② Drill new mounting hole(s).
③ Connect yoke terminal #6 to yoke #1, yoke #3 to plug #7, yoke #2 and #7 to plug #2, yoke #6 and #1 to plug #5, yoke #4 to plug #3.
④ Use original width device.
⑤ Connect yoke terminal #6 to yoke #7, yoke #2 to plug #7, yoke #1 and #3 to plug #2, yoke #7 and #6 to plug #5, yoke #4 to plug #3.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
T4	4900Ω	3-4Ω	B80-21-1D ①	A-3026	A-3977	24S48	S-8X	① Alternate Part #80-21-1.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SILVERTONE PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω	35-383-4 *	5A07R	* Used in Models 1134, 1135, 1136, 1137.
	4"	PM	3-4Ω	35-288-4 #	4A07	# Used in Models 1120, 1121, 1130, 1131, 146, 147, 144, 145.
	4"	PM		35-428-4 *		* Used in Models 1150, 1161, 1152, 1103.

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA SILVERTONE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.230A	86-9-3	1N1763 *	300 *	SR500 *	* Silicon
M2	.230A	86-9-3	1N1763 *	300 *	SR500 *	* Selenium

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Tuner	96-340-0	VHF Complete, Used in Chassis 456/528.50354, 50356, 50358, 50360, 50362, 50364, 50366
	Tuner	96-134-0	VHF Complete, Used in Chassis 456/528.50369
	Tuner	96-195-0	VHF Complete, Used in Chassis 456/528.50348
	Tuner	96-188-0	VHF/UHF Complete, Includes VHF Tuner #96-187-0, and UHF Tuner #96-186-0. Used in Chassis 456/528.50349, 50355, 50359, 50361, 50365
	Tuner	96-183-0	VHF/UHF Complete, Includes VHF Tuner #96-184-0, and UHF Tuner #96-183-0, Used in Chassis 456/528.50357, 50363
M4	Circuit Breaker	43-9-2	
M5	Magnet	27-66-3	Beam Alignment (If Required)
M6	Magnet	83-936 or 83-1034	Centering Device
M7	Magnet	83-1334	Width Device
	Printed Board	94-7882-1	IF, Sync, & Sound Circuit Assembly, Less Tubes
	Printed Board	25-14-0	IF, Sync, & Sound Circuit Assembly, Less All Components
	Printed Board	94-7905-1	Horizontal & Vertical Osc. Circuit Ass'y, Less Tubes
	Printed Board	25-5-0	Horizontal & Vertical Osc. Circuit Ass'y, Less All Components

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8464 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

UHF TUNER PARTS LIST AND DESCRIPTIONS

95-186-0
95-183-0

TUBES

* GENERAL ELECTRIC * ITEM No.	USE	TYPE	* RAYTHEON * ITEM No.	USE	TYPE	* SYLVANIA * ITEM No.	USE	TYPE	* ITEM No.	USE	TYPE
V301	UHF Osc.	2AF4B									

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301								
C302	.91 10%	#2101-918						
C303	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP20	10TS-D10
C304	18			TC2-18	C10Q18C	CCTO-180	CNO-418	10TCC-Q18
C305		#1620-9						
C306	1.5 N750 2.5%	#170-159						
C307	15		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C308	15		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C309	1000		EF-001	MFT-1000		CCF-102	CT280A	
C310	1000		EF-001	MFT-1000		CCF-102	CT280A	
C311	1000		EF-001	MFT-1000		CCF-102	CT280A	
C312	1000		EF-001	MFT-1000		CCF-102	CT280A	

Silvertone Part No.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R301	820K			
R302	150Ω			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R303	6800Ω			
R304	1000Ω			

COILS (RF-IF)

ITEM No.	USE	Silvertone PART No.	NOTES
L301	UHF Mixer	1785-13	
L302	RF Choke	1785-13	
L303	Cathode Choke	1911-12	
L304	Osc. Coil	1785-9	

ITEM No.	USE	Silvertone PART No.	NOTES
L305	Fil. Choke	1785-70	
L306	Fil. Choke	1785-70	
L307	UHF IF Output	1911-10	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA SILVERTONE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M301				1N82A	1N82A	UHF Osc. (Clip-in)

MISCELLANEOUS

ITEM No.	PART NAME	Silvertone PART No.	NOTES
	Dial Shaft	5317-545	UHF Tuner #95-183-0 or #95-186-0
	Tuning Shaft	5377-550	UHF Tuner #95-183-0 or #95-186-0
	Selector Shaft	5333-534	Assembly for VHF-UHF Tuner #195-185-0
	Selector Shaft	5333-535	Assembly for VHF-UHF Tuner #195-182-0

VHF TUNER PARTS LIST AND DESCRIPTIONS

95-240-0

TUBES

* GENERAL ELECTRIC * ITEM No.	USE	TYPE	* RAYTHEON * ITEM No.	USE	TYPE	* SYLVANIA * ITEM No.	USE	TYPE
V201	RF Amp.	2CY5				V202	Mixer - Osc.	5CL8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	15		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C202	4				C10V4C			10TCC-V39
C203	1.2 10%		NPO-SI 1.5	DTZ-1R5	C10V15C		CNO-S15	10TCC-V12
C204	1000		EF-001	MFT-1000		CCF-102	CT280A	
C205	1000		DI-1000	BYA10D1	CCD-102	CCD-102	GP210	10TS-D10
C206	.91 10%	#2101-918						
C207	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C208	1.5 10%		NPO-SI 1.5	DTZ-1R5	C10V15C		CNO-S15	10TCC-V15
C209	.36 10%	#2101-368						
C210	.47 10%	#2101-478						
C211	15		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C212	1.5 N750	#259-159						
C213	100		EF-0001	MFT-100				
C214	1.5			TC2-1R5	C10V15C		CNO-S15	
C215	1000		DI-102	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C216	120 N750 5%	#253-121						
C217	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C218	10 N320 5%	#169-100				CCD-100		10TCH-Q10
C219	1.5 N1000 5%	#174-159				*		*
C220	68		DI-68	DD-680	L10Q68	CCD-680	GP468	10TS-Q68
C221	1000		EF-001	MFT-102		CCF-102	CT280A	
C222	1000		EF-001	MFT-102		CCF-102	CT280A	
C223	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C224	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C225	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
# Silvertone Part Number

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	100K			
R202	22K			
R203	10K			
R204	220K			
R205	6800Ω			
R206	27K			

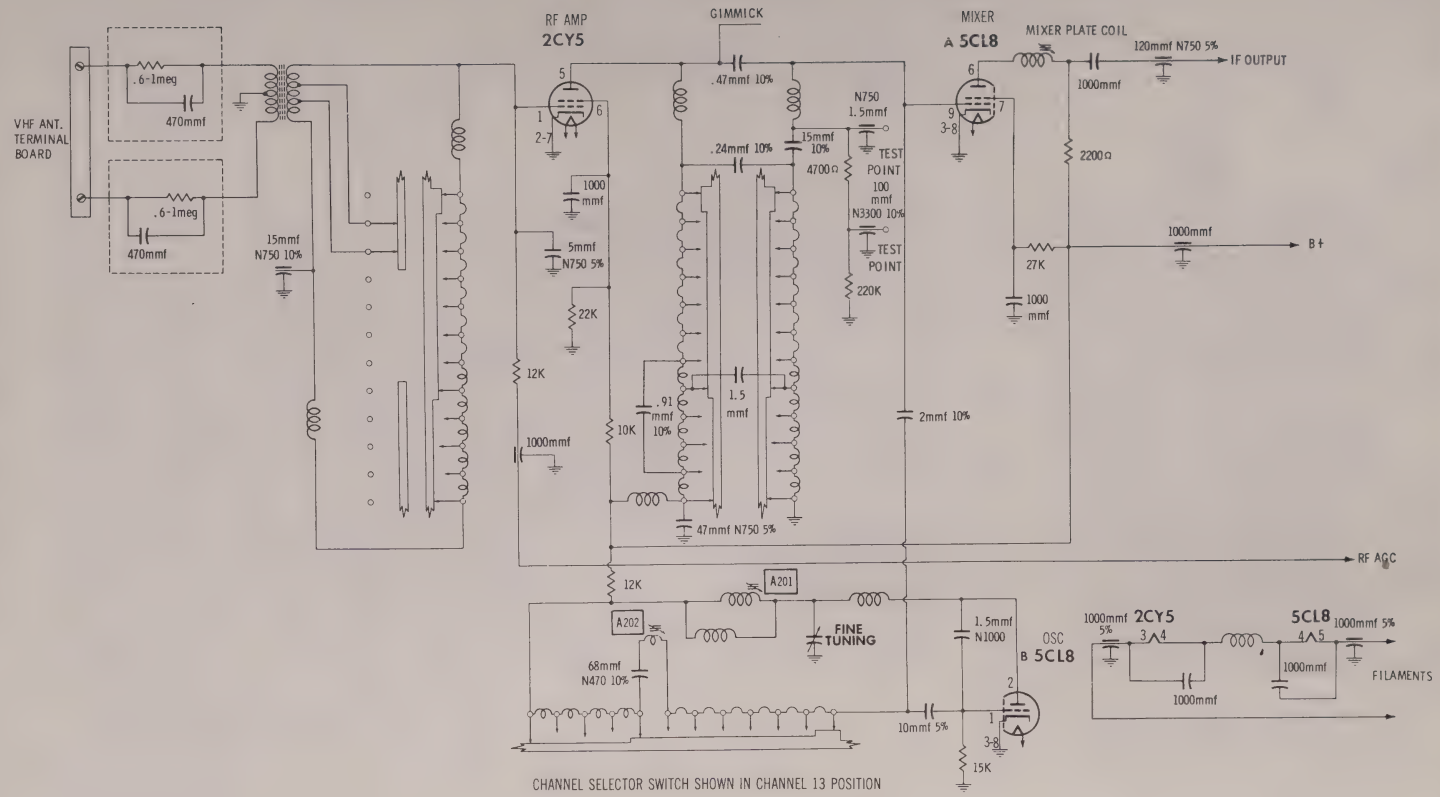
ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R207	2200Ω			
R208	12K			
R209	15K			
R210	10K			
R211	9100Ω			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K201	Antenna Filter			

SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

FOLDER 1



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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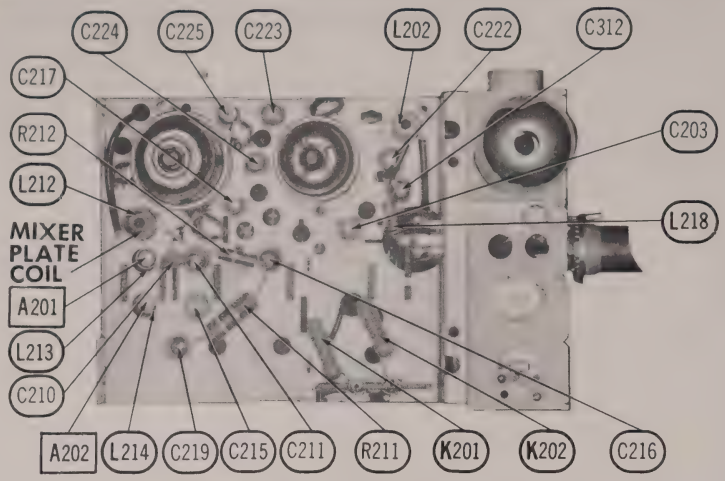
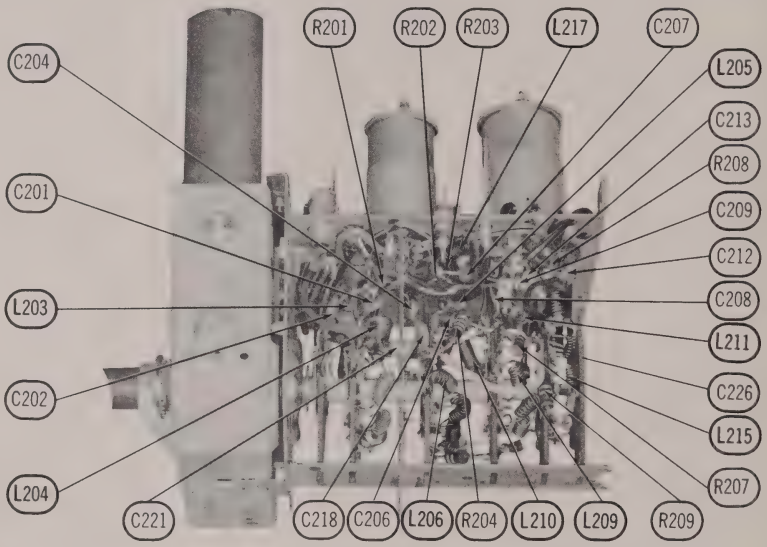
VHF TUNER 95-195-0

SILVERTONE CHASSIS 456/528.50348, 349, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 369

TOP VIEW



RIGHT SIDE



UHF TUNER 95-186-0 & VHF TUNER 95-187-0
(UHF-VHF TUNER COMBINED 95-185-0)

TUNER ALIGNMENT INSTRUCTIONS
95-182-0, -185-0, -195-0

Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VHF OSCILLATOR ALIGNMENT

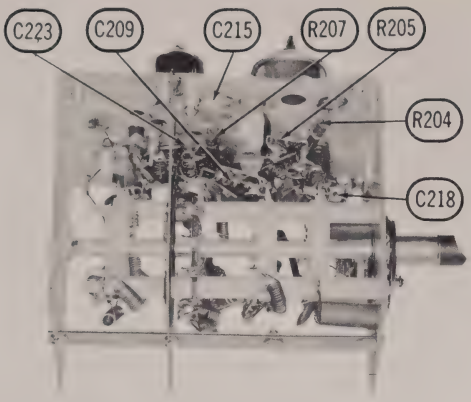
Set the Fine Tuning to the center of its range (flat of fine tuning shaft at right angles to the top of tuner). Set the Channel Selector to the highest high band channel (13-7) operating in the area. Adjust the high band oscillator adjustment slug (A201) for best picture and sound.
Switch Channel Selector to the highest low band (6-2) channel operating in the area and adjust the low band Oscillator Adjustment (A202) for best picture and sound. Recheck high band adjustment.

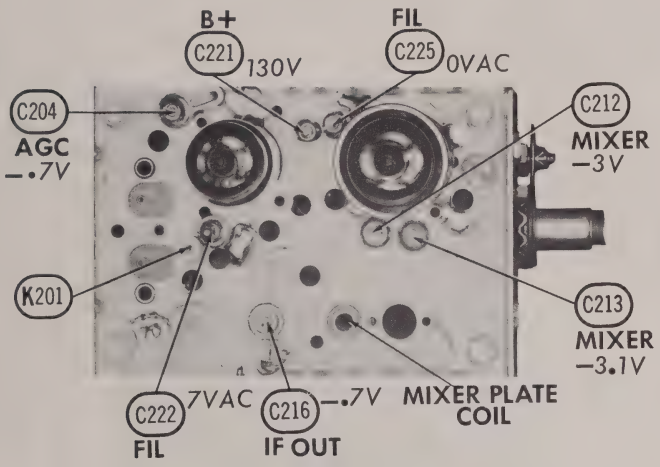
VHF RF AND MIXER ALIGNMENT

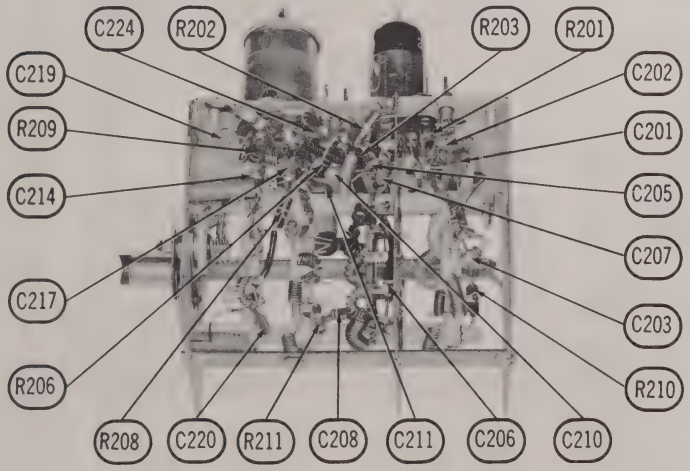
This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

UHF TUNER ALIGNMENT

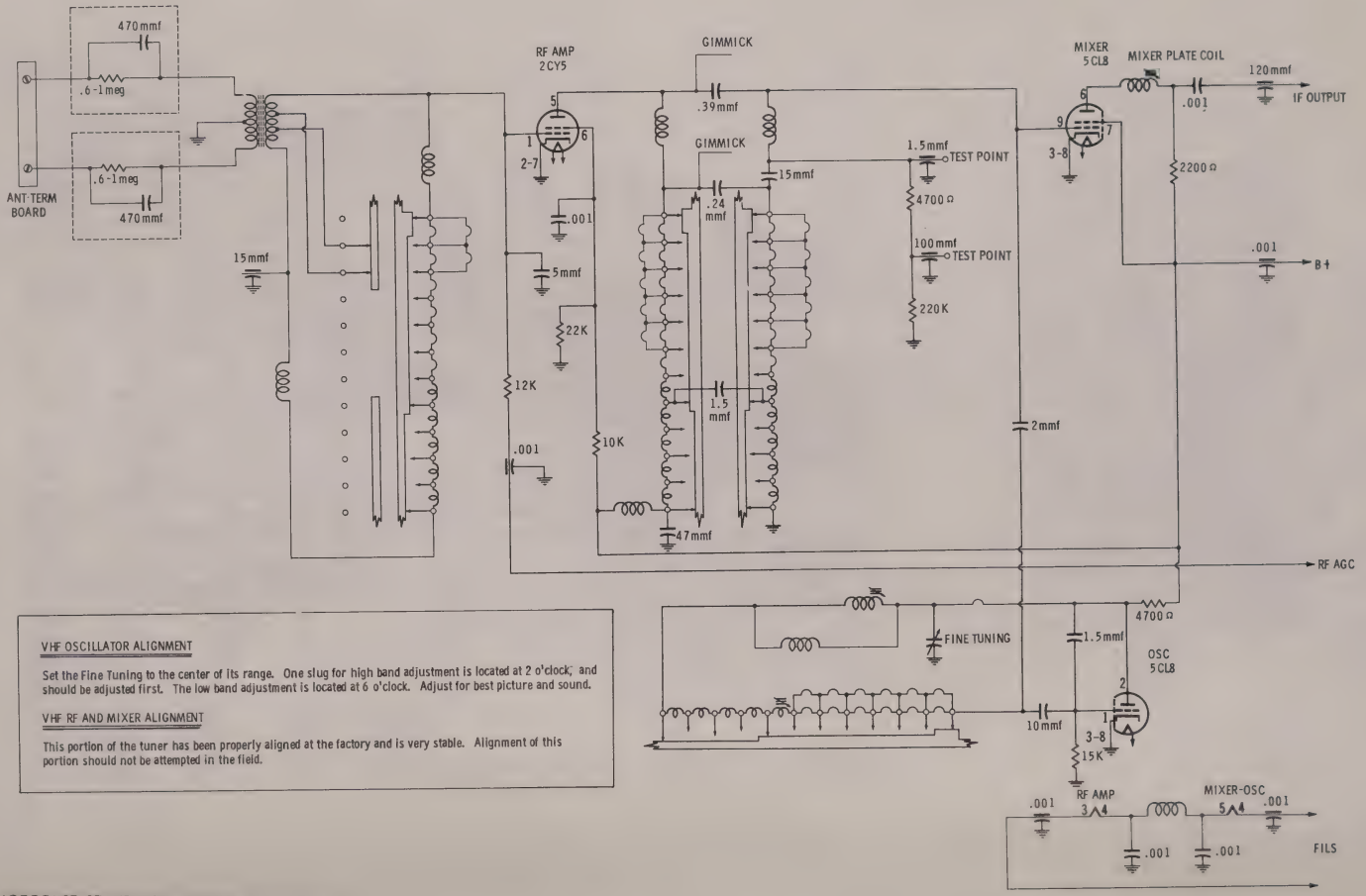
This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.







VHF TUNER 95-240-0



VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range. One slug for high band adjustment is located at 2 o'clock, and should be adjusted first. The low band adjustment is located at 6 o'clock. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

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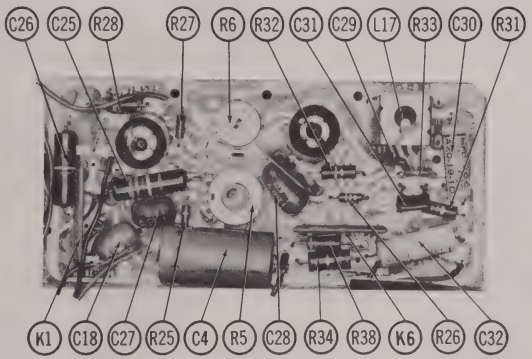
VHF TUNER 95-134-0

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3CB6	1meg	47Ω	4Ω	5Ω	†2000Ω	†2000Ω	0Ω		
V2	5AM8	220Ω	.1Ω	†2600Ω	5Ω	7Ω	†2600Ω	0Ω	5600Ω	0Ω
V3	6BH8	0Ω	2.2meg	†470K	10Ω	7Ω	•100Ω	1meg	†1600Ω	†4000Ω
V4	5U8	†8700Ω	3.8Ω	†80K	10Ω	12Ω	†12K	220Ω	3300Ω	†470K
V5	3DT6	4Ω	680Ω	12Ω	13Ω	†1meg	†10K	5.5Ω		
V6	5AQ5	NC	180Ω	13Ω	15Ω	†945Ω	†560Ω	• 0Ω		
V7	6CM7	†1900Ω	NC	0Ω	22Ω	18Ω	•†2.5meg	• 1.4meg	2.2meg	•3000Ω
V8	6CG7	†33K	480K	0Ω	26Ω	22Ω	†475Ω	500K	320K	NC
V9	12AV5GA	500K	26Ω	0Ω	NC	†40Ω	NC	36Ω	†6800Ω	
V10	12AX4GTB	TP	NC	¶ †180K	NC	†5.5Ω	NC	45Ω	36Ω	
V11	1G3GT / 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †440Ω
V12	23AHP4	18Ω	68K	Pin 6 0Ω	Pin 10 †.9Ω	Pin 11 • 600K	Pin 12 15Ω			
V201	2CY5	1.1meg	0Ω	4	3Ω	†1600Ω	†11K	0Ω		
V202	5CL8	15K	†13K	0Ω	3Ω	0Ω	†3800Ω	†28K	0Ω	227K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

ALL FILAMENT MEASUREMENTS MADE FROM SWITCH SIDE OF POWER LINE.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
† MEASURED FROM PIN 3 OF V10.

NC NO CONNECTION
TP TIE POINT



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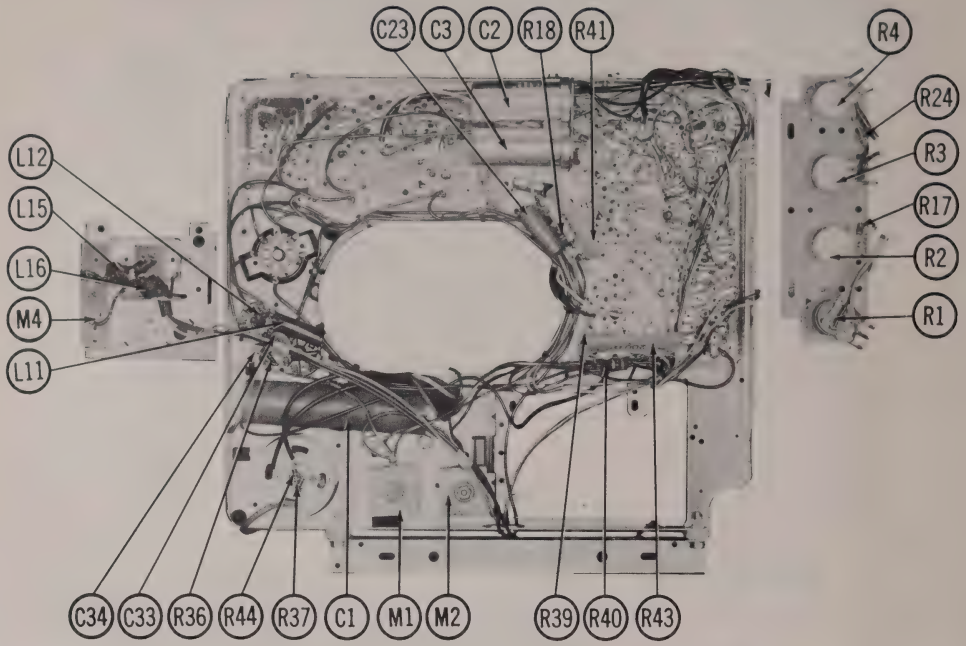
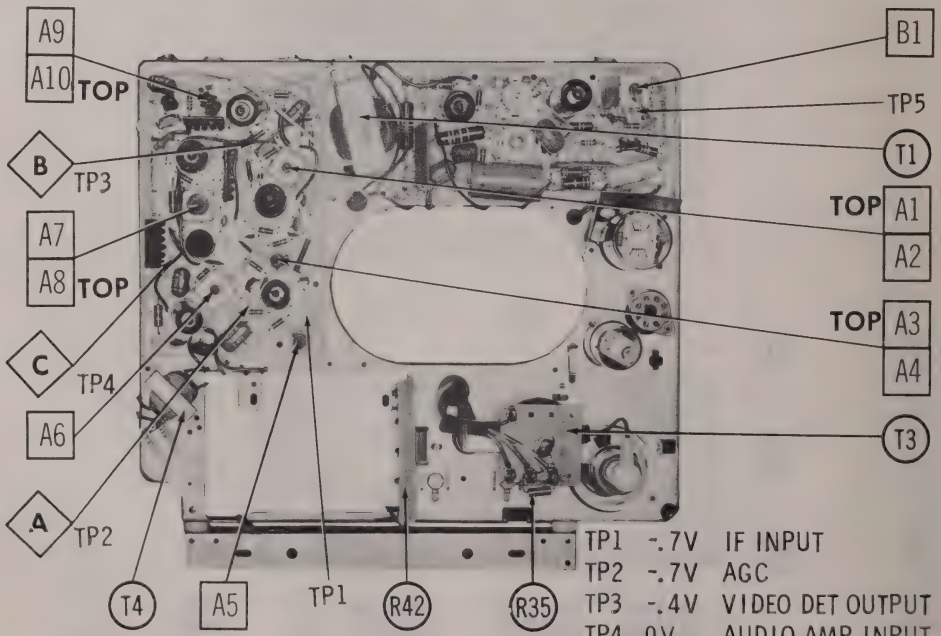
SWEEP PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

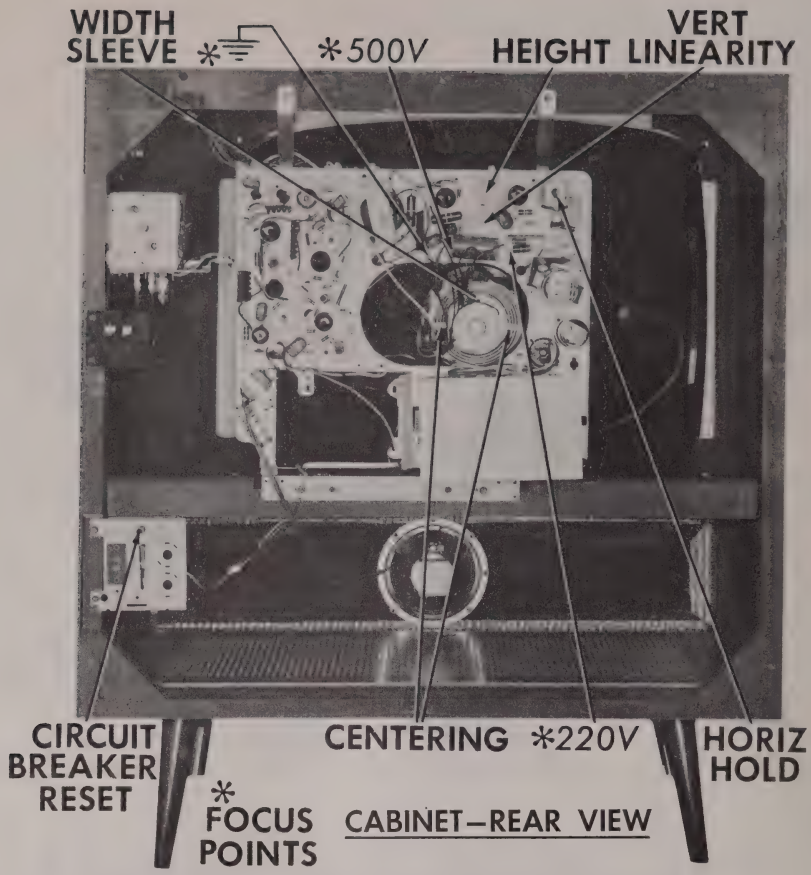
FOLDER 1



CHASSIS - FRONT VIEW



CHASSIS - REAR VIEW



HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect the high side of the scope thru a low capacity probe to TP5. Low side to chassis. Turn the set on and adjust the Horizontal Hold until the picture synchronizes horizontally. Adjust the waveform slug (B1) for waveform similar to Fig. 5 with the sharp peak 10% higher than the broad peak. While making this adjustment, keep the picture synchronized horizontally with the Horizontal Hold.

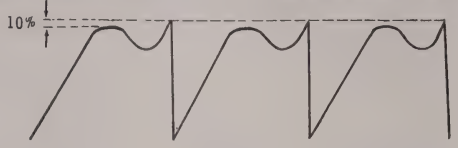


FIG. 5

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL 1134

1. Remove 12 wood screws holding rear cover.
2. Remove rear cover.
3. Remove 2 push-on type knobs at front of cabinet.
4. Remove 4 push-on type knobs at side of cabinet.
5. Remove 2 screws holding control panel.
6. Disconnect picture tube socket, yoke plug, high voltage lead, and speaker leads.
7. Remove 2 screws holding circuit breaker bracket.
8. Remove 4 chassis screws and one screw holding VHF Tuner. (Disconnect antenna leads).
9. Remove chassis.

PICTURE TUBE REMOVAL

1. Remove 4 screws at top front of cabinet holding strip and remove safety glass.
2. Remove rear cover.
3. Remove picture tube socket, yoke, and high voltage lead.
4. Remove 4 bolts in front of cabinet holding picture tube mounting bracket.
5. Remove picture tube out front.

PHOTOFACT® Folder with CIRCUITRACE®

WESTINGHOUSE CHASSIS V-2411-1, V-2411-2, V-2411-3, V-2411-4, V-2411-5,-6

WESTINGHOUSE CHASSIS V-2411-1, V-2411-2, V-2411-3, V-2411-4, V-2411-5,-6

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL H-K4150 (TV CH. V-2411-6)

WESTINGHOUSE CHASSIS V-2411-1, V-2411-2, V-2411-3, V-2411-4, V-2411-5,-6

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 535 FOLDER 2

WESTINGHOUSE CHASSIS V-2411-1, V-2411-2, V-2411-3, V-2411-4, V-2411-5, -6

WESTINGHOUSE CHASSIS V-2411-1, V-2411-2, V-2411-3, V-2411-4, V-2411-5, -6

MODEL H-K4150 (TV CH. V-2411-6)

TRADE NAME	WESTINGHOUSE MODELS	TV CHASSIS	REMOTE CONTROL Receiver/Transmitter	VHF TUNER	UHF TUNER
	H-T3710, 3711, 3712; H-K4010, 4011, 4012, 4013	V-2411-1		470V071H01	
	H-T3710U, 3711U, 3712U; H-K4010U, 4011U, 4012U, 4013U	V-2411-2		470V063H02	472V037H01
	H-K4110, 4111, 4112, 4113; H-K4210, 4211, 4212, 4213, 4214, 4215	V-2411-3		470V071H01	
	H-K4110U, 4111U, 4112U, 4113U; H-K4210U, 4211U, 4212U, 4213U, 4214U, 4215U	V-2411-4		470V063H02	472V037H01
	H-T3750, 3751, 3752; H-K4050, 4051, 4052, 4053	V-2411-5	V-2408, 559V087H01	470V071H01	
	H-K4150, 4151, 4152, 4153	V-2411-6	V-2408, 559V087H01	470V071H01	

MANUFACTURER	Westinghouse Electric Corp., Television & Radio Div., Metuchen, N. J.
TYPE SET	Television Receiver (TV Ch. V-2411-5, -6 with Remote Control)
TUBES	TV: VHF - Seventeen, UHF - Eighteen; Remote Control Receiver: Five
RATING	VHF TV with Remote Control Receiver.. 230 Watts, 2.05 Amp. @ 117 Volts AC (245 Watts, 2.3 Amp. While Tuning)
	TV. ..... 195 Watts, 1.75 Amp. @ 117 Volts AC
	Remote Control Receiver. ..... 35 Watts, .3 Amp. @ 117 Volts AC
POWER SUPPLY	105 - 120 Volts AC, 60 Cycle
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 3 screws holding the trim strip at the top edge of the safety glass. Remove 2 side retaining strips; tilt glass out and remove.

FUSE

TV: A 3.5 Amp. (125V S/B) fuse is used for LV Supply protection. (See "Tube Placement Chart" for location.) A fuse wire is used for filament protection. (See M2 in photo "TV Chassis - Bottom View" for location.)

Remote Control Receiver: A $\frac{1}{2}$ Amp. (125V S/B) fuse is used for LV Supply protection. (See "Remote Control Receiver - Bottom View" for location of M10.)

TUNER OSCILLATOR ADJUSTMENTS

To touch up VHF Oscillator, remove Channel Selector knob and Memory Fine Tuning Knobs. Remove Front Plate and Channel Dial (each held by 1 screw).

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B2). (For location, see "Tube Placement Chart".)

WIDTH

To increase or decrease the width, loosen yoke clamp and move tab (at bottom side of picture tube neck) in or out of yoke.

CENTERING

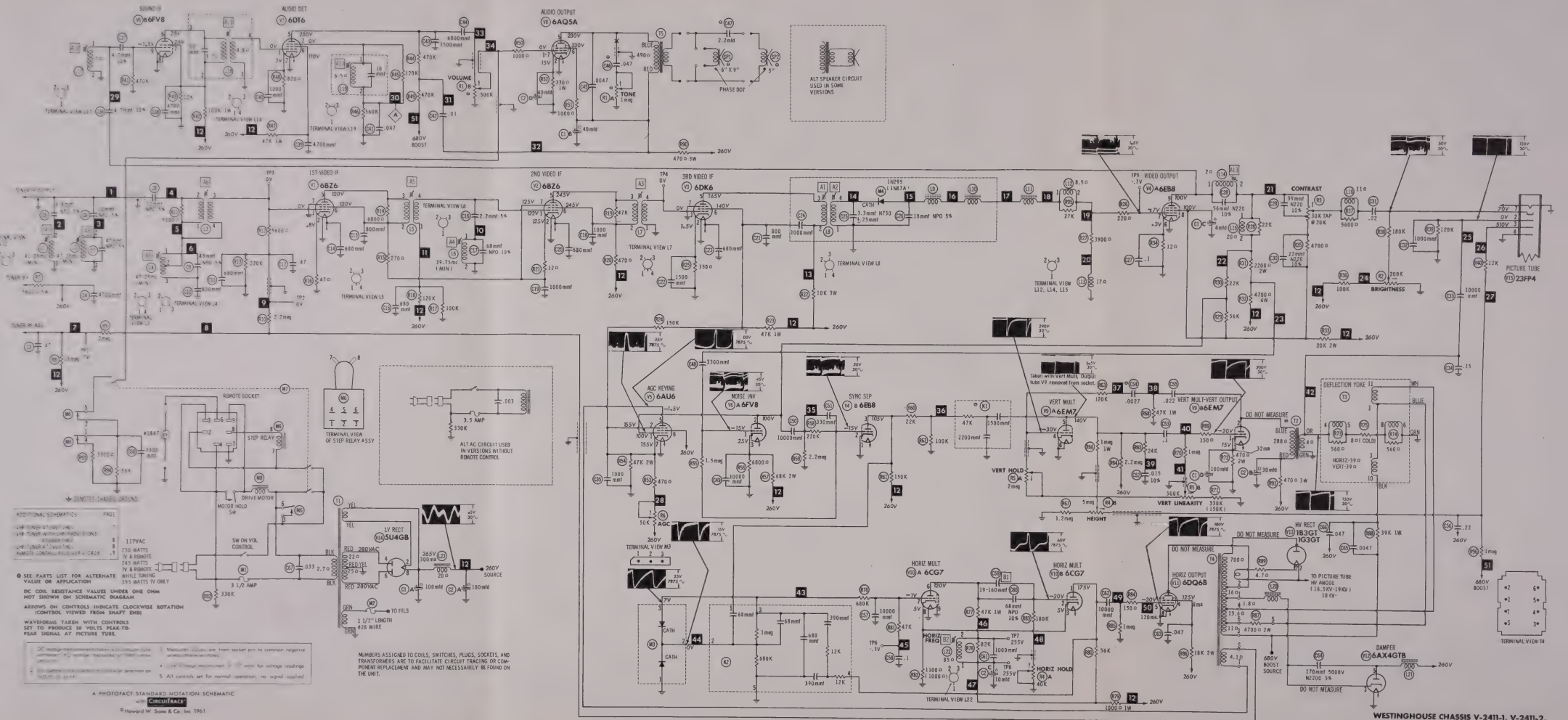
Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

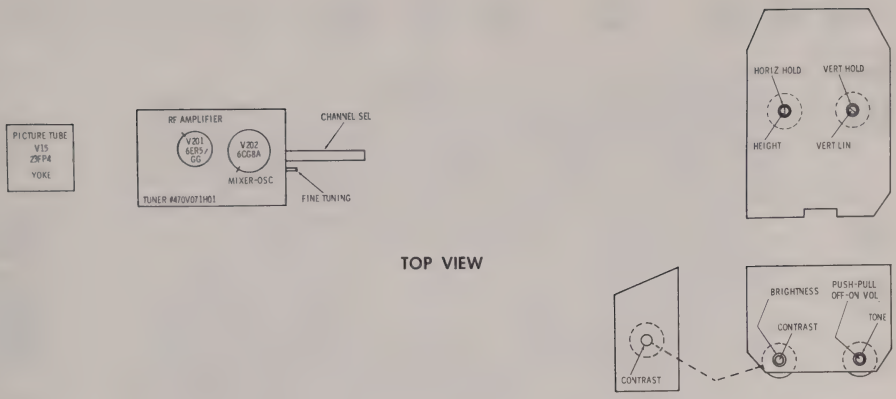
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KA736

SET 535 FOLDER 2


SOUND IF
AUDIO DET
AUDIO OUTPUT
1ST VIDEO IF
2ND VIDEO IF
3RD VIDEO IF
VIDEO OUTPUT
CONTRAST
BRIGHTNESS
VOLUME
TONE
PHASE DOT
ALT SPEAKER CIRCUIT USED IN SOME VERSIONS
REMOTE SOCKET
STEP RELAY
DRIVE MOTOR
MOTOR HOLD SW
SW ON VOL CONTROL
TERMINAL VIEW OF STEP RELAY ASSY
ALT AC CIRCUIT USED IN VERSIONS WITHOUT REMOTE CONTROL
AGC KEYING
NOISE INV
SYNC SEP
VERT MULT
VERT HOLD
VERT LINEARITY
HEIGHT
VERT MULT-VERT OUTPUT
DEFLECTION YOKE
HORIZ MULT
HORIZ FREQ
HORIZ HOLD
HORIZ OUTPUT
HV RECT
TO PICTURE TUBE HV ANODE (16.5KV-19KV) 18 CV-
DAMPER
LV RECT
TERMINAL VIEW L22
TERMINAL VIEW T4
PICTURE TUBE
DO NOT MEASURE
680V BOOST
680V BOOST SOURCE
260V SOURCE
TO FILS
117VAC
230 WATTS TV & REMOTE
245 WATTS TV & REMOTE WHILE TUNING
195 WATTS TV ONLY
3 1/2 AMP
3.5 AMP
1 1/2" LENGTH #28 WIRE
TERMINAL VIEW L4
TERMINAL VIEW L5
TERMINAL VIEW L6
TERMINAL VIEW L7
TERMINAL VIEW L8
TERMINAL VIEW L19
TERMINAL VIEW L12, L14, L15
TERMINAL VIEW M3
TERMINAL VIEW T2
TERMINAL VIEW T3
TERMINAL VIEW T4
TERMINAL VIEW T5
TERMINAL VIEW T6
TERMINAL VIEW T7
TERMINAL VIEW T8
TERMINAL VIEW T9
TERMINAL VIEW T10
TERMINAL VIEW T11
TERMINAL VIEW T12
TERMINAL VIEW T13
TERMINAL VIEW T14
TERMINAL VIEW

TUBE PLACEMENT CHART
TV



WESTINGHOUSE CHASSIS V-2411-1, V-2411-2, V-2411-3, V-2411-4, V-2411-5

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

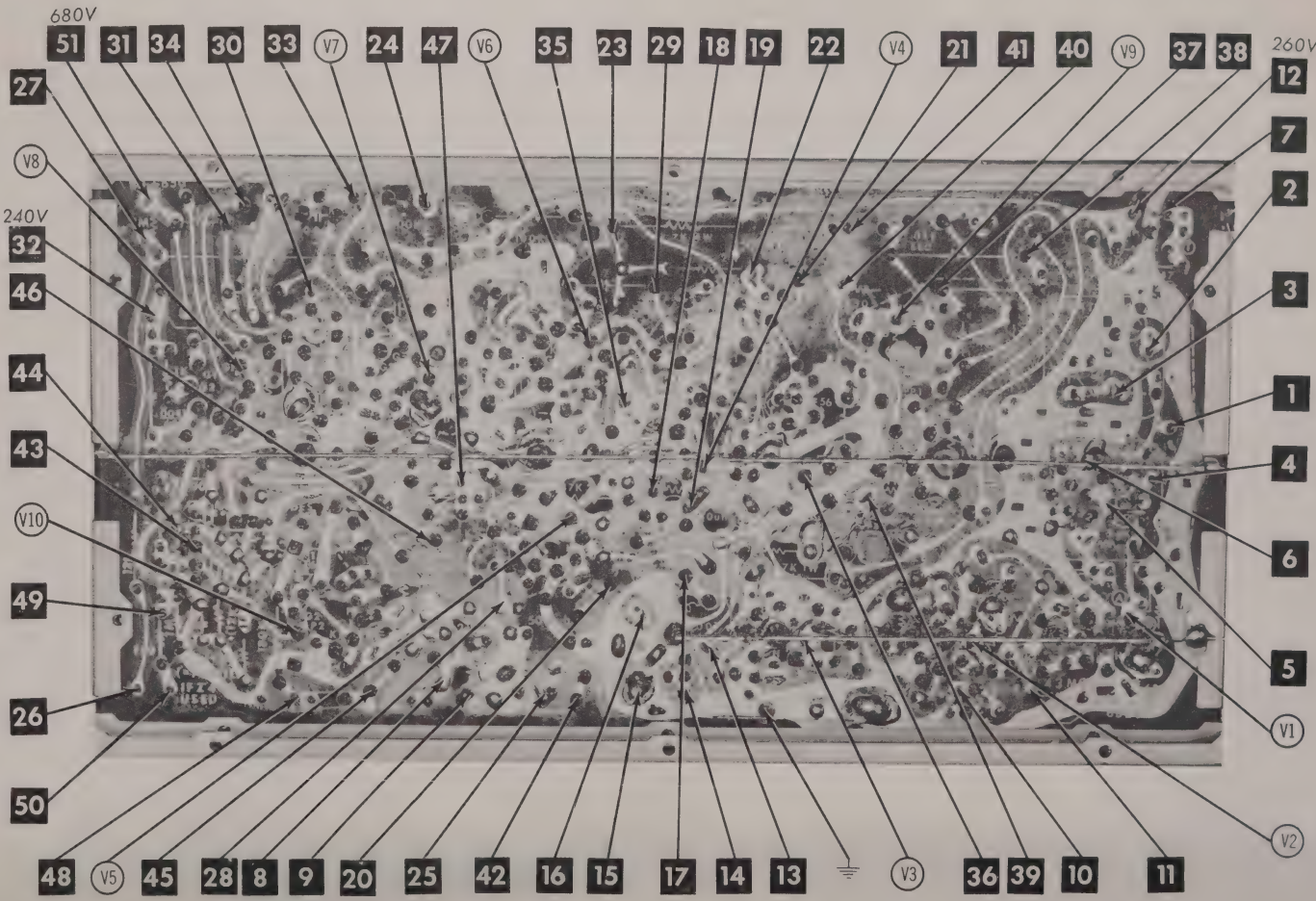
POWER SUPPLY FAILURE
No raster, no sound Fuse (Line), Fuse (Fil. Wire), V14

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V15
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, V14
Vert. off freq. V9
Horiz. off freq. Diode (Horiz. AFC), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V6, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V4, V6
No horiz. sync V4, V6
No vert. or horiz. sync V4

FOLDER 2



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TV PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

TV ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage Lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead to a 4 volt bias supply to point TP-1. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to TP-3. Low side to chassis.	Not Used	44.25MC (Unmod.)	10	Use VTVM DC probe to TP-5. Common to chassis (Across Det. Load)	A1, A2	Adjust for maximum deflection.
2.	"	"	45.62MC	"	"	A3	Adjust for maximum deflection.
3.	"	"	39.75MC	"	"	A4	Adjust for MINIMUM deflection.
4.	"	"	42.75MC	"	"	A5	Adjust for maximum deflection.
5.	"	44MC (10MC Swp.)	39.75MC 41.25MC 42.25MC 43.0MC 45.0MC 45.75MC	"	Vert. Amp. to TP-5. Low side to chassis.		Check for response similar to Fig. 1. If necessary, retouch A1, A2, A3 and A5 for desired response.
6.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	Not Used	44.25MC	"	Use VTVM DC probe to TP-5. Common to chassis.	Mixer Plate Coil	Adjust for maximum deflection.
7.	"	"	44.0MC	"	"	A6	"
8.	"	"	41.25MC	"	"	A7	Adjust for MINIMUM deflection.
9.	"	"	47.25MC	"	"	A8	"
10.	"	"	"	"	"	A9	"
11.	"	44MC (10MC Swp.)	41.25MC 42.25MC 43.0MC 45.0MC 45.75MC	"	Vert. Amp. to TP-5. Low side to chassis.		Check for response similar to Fig. 2. If necessary, retouch Mixer Plate Coil and A6 for desired response.

SOUND IF ALIGNMENT

Tune in a TV signal, preferably with a test pattern and tone signal. Adjust the Fine Tuning for best reception. Set the Volume Control so that the sound is audible. Adjust A10 for maximum sound output.
Connect a short clip lead from pin 1 (grid) of the 3rd Video IF Amp. to chassis. Connect the DC probe of the VTVM to point (A). Common to chassis. Adjust A11 for maximum negative voltage on the VTVM. Remove the clip lead from the circuit. Disconnect the antenna lead and place near the antenna terminals so that the signal coupled to the receiver produces a very weak picture. A hiss will be noted in the sound. Adjust A12 for maximum negative voltage on the VTVM. If the VTVM indicates a broad response while adjusting A12, move the antenna lead farther from the antenna terminals.

4.5MC TRAP ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	High side thru .001mfd to TP-5. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	Demodulator probe thru .001mfd to pin 7 (Picture Tube Cath.) Common to chassis.	A13	Adjust for MINIMUM deflection.

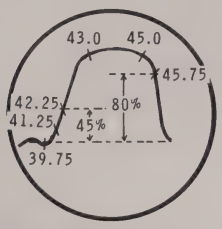


FIG.1

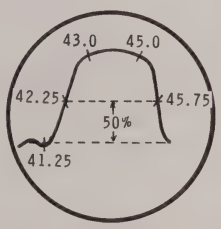


FIG.2

TUNER ALIGNMENT INSTRUCTIONS

470V071H01

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A203 ..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A216 thru A227..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A204 thru A215 ..... None Required

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.
Use only enough sweep generator output to provide a usable pattern on scope.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Use 10MC sweep unless otherwise noted.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U). Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	213MC	211.25MC 215.75MC	13	"	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
		207MC	205.25MC 209.75MC	12		A205	
		201MC	199.25MC 203.75MC	11		A206	
		195MC	193.25MC 197.75MC	10		A207	
		189MC	187.25MC 191.75MC	9		A208	
		183MC	181.25MC 185.75MC	8		A209	
		177MC	175.25MC 179.75MC	7		A210	
		85MC	83.25MC 87.75MC	6		A211	
		79MC	77.25MC 81.75MC	5		A212	
		69MC	67.25MC 71.75MC	4		A213	
		63MC	61.25MC 65.75MC	3		A214	
		57MC	55.25MC 59.75MC	2		A215	

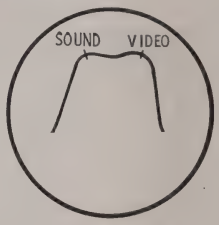


FIG.201

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Det. load.	A216	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
		207MC	205.25MC 209.75MC	12		A217	
		201MC	199.25MC 203.75MC	11		A218	
		195MC	193.25MC 197.75MC	10		A219	
		189MC	187.25MC 191.75MC	9		A220	
		183MC	181.25MC 185.75MC	8		A221	
		177MC	175.25MC 179.75MC	7		A222	
		85MC	83.25MC 87.75MC	6		A223	
		79MC	77.25MC 81.75MC	5		A224	
		69MC	67.25MC 71.75MC	4		A225	
		63MC	61.25MC 65.75MC	3		A226	
		57MC	55.25MC 59.75MC	2		A227	

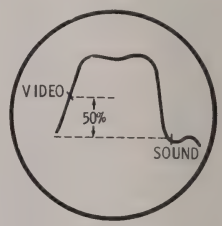
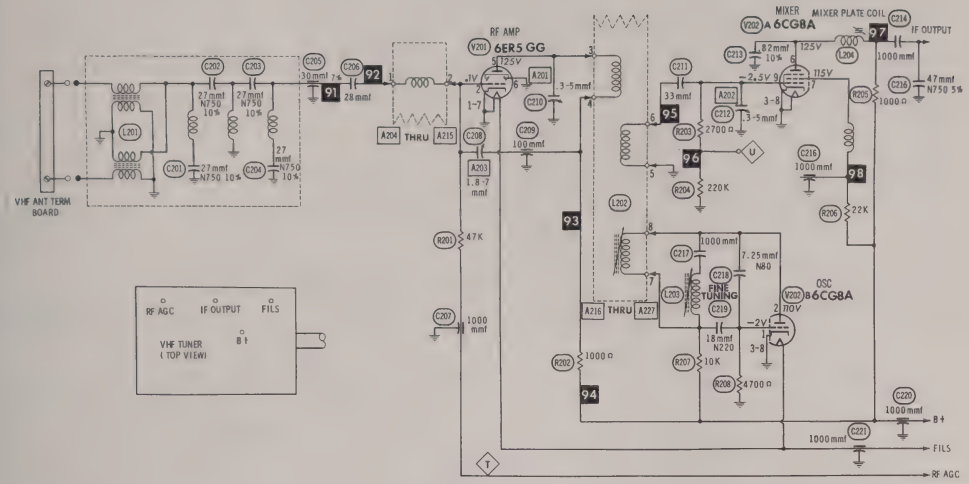


FIG.202



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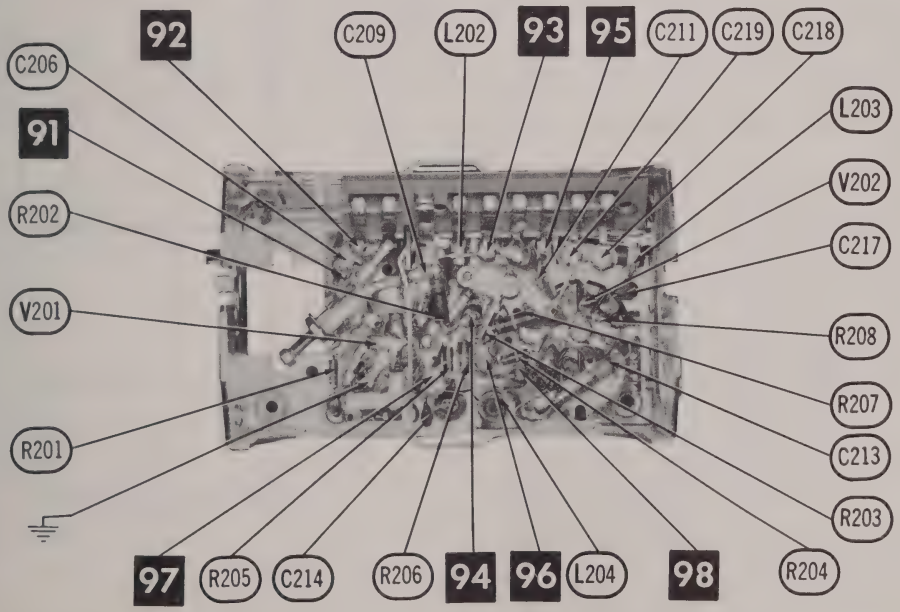
VHF TUNER 470V071H01



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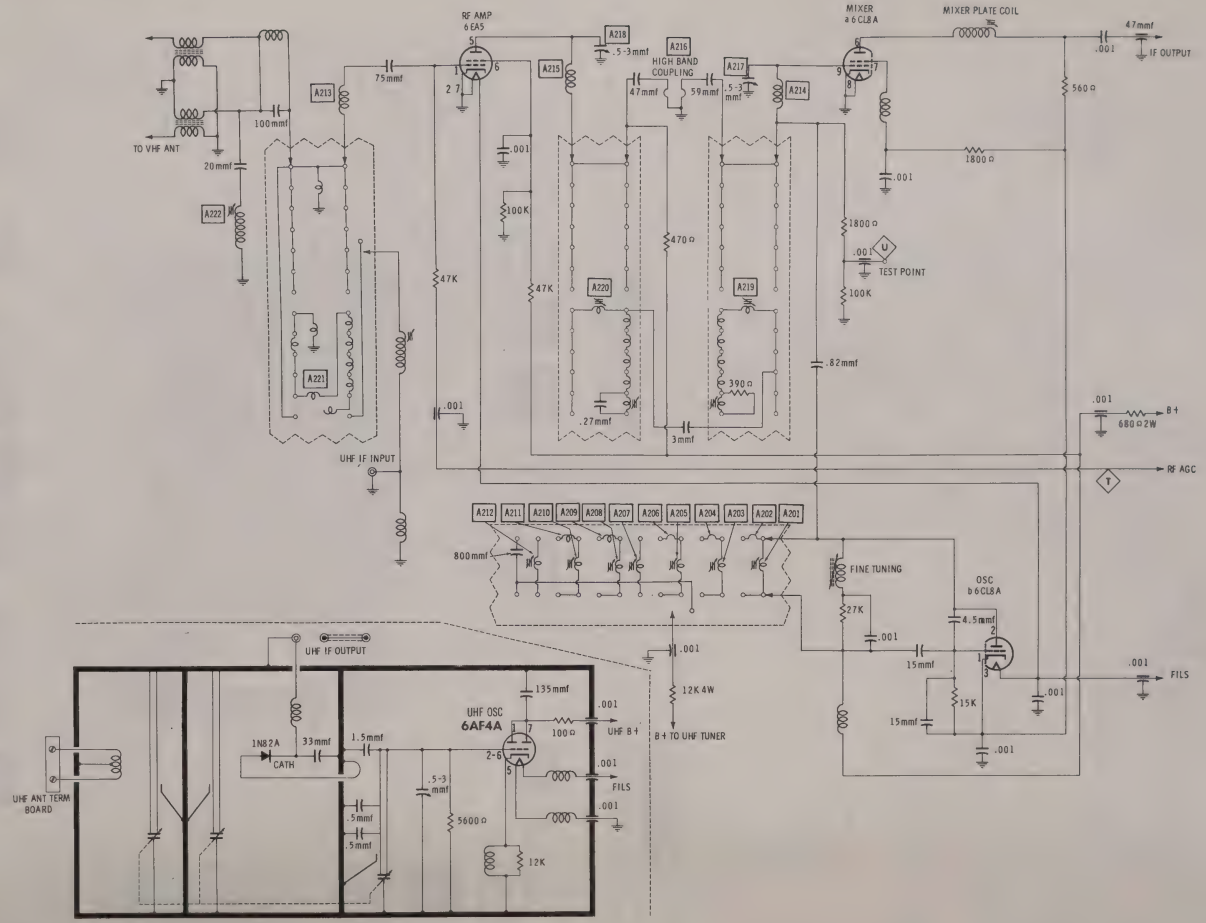
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER 470V071H01 - BOTTOM VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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UHF TUNER 472V037H01 VHF TUNER WITH UHF PROVISIONS - 470V063H02

REMOTE CONTROL RECEIVER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • USE	GENERAL ELECTRIC • TYPE	ITEM No.	RAYTHEON • SYLVANIA • USE	RAYTHEON • SYLVANIA • TYPE
V16	1st 40KC Amp.	6AU6	V19	Discriminator	6AL5
V17	2nd 40KC Amp.	6AU6	V20	Channel Sel. - Volume Step Relay Control Amp.	6EV7
V18	3rd 40KC Amp. - AGC	6EV8			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C59A	⌀30	200	218V036H49	AFH3-36	BG210	FP2L7	TMD-3235	TVL-2515	
B	⌀30	200							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C70	.1	200V		P288N-1	DF-104	CUB2P1	EDP-3-104	GEM-201	2TM-P10
C71	1000			BPD-001	DD-103	BYA101X	C-CD-103	B-210	5HK-D10
C72	10000			BPD-01	DD-103	BYA102X	C-CD-103	B-110	5HK-E10
C73	680	10%		DE-680	DD-681	SR5T61	CM-681	GP368	10TS-T68
C74	.1	200V		P288N-1	DF-104	CUB2P1	EDP-3-104	GEM-201	2TM-P10
C75	1000			BPD-001	DD-103	BYA101X	C-CD-102	B-210	5HK-D10
C76	10000			BPD-01	DD-103	BYA102X	C-CD-103	B-110	5HK-E10
C77	680	10%		DE-680	DD-681	SR5T68	CM-681	GP368	10TS-T68
C78	.1	200V		P288N-1	DF-104	CUB2P1	EDP-3-104	GEM-201	2TM-P10
C79	1000			BPD-001	DD-103	BYA101X	C-CD-103	B-210	5HK-D10
C80	.1	200V		P288N-1	DF-104	CUB2P1	EDP-3-104	GEM-201	2TM-P10
C81	.22	200V		P288N-22		CUB2P23	EDP-4-224	GEM-2023	2TM-P22
C82	10000			BPD-01	DD-103	BYA102X	C-CD-103	B-110	5HK-E10
C83	1500	5%		1464-0015		SR5D15	CM-193-15J	MCE458	MS-D15
C84	.1	200V		P288N-1	DF-104	CUB2P1	EDP-3-104	GEM-201	2TM-P10
C85	1000			BPD-001	DD-103	BYA101X	C-CD-102	B-210	5HK-D10
C86	560	5%		1469-00066		SR5D15	CM-193-56J	MCJ247	MS-356
C87	1000			BPD-001	DD-103	BYA101X	C-CD-103	B-210	5HK-D10
C88	.047	200V	(.15) †	P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C89	1000			BPD-001	DD-103	BYA101X	C-CD-103	B-210	5HK-D10
C90	.15	200V		P288N-15		CUB2P15	EDP-3-154	GEM-3015	2TM-P15
C91	.15	600V		P688N-15		CUB2P15	EDP-3-154	GEM-3015	2TM-P15

† Alternate Value.

CONTROLS

ITEM No.	RATING RESIST AMCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R97	500Ω	2(WW)	V-11345-2		39-500	112-500	FL-500	Sensitivity

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R98	1meg			
R99	68K			
R100	12K			
R101	1800Ω			
R102	1meg			
R103	68K			
R104	12K			
R105	1800Ω			
R106	100Ω			
R107	2200Ω			
R108	68K			
R109	390K			
R110	2.2meg			
R111	2.2meg			
R112	1meg			
R113	2.2meg			
R114	470K			
R115	1meg			
R116	2.2meg			
R117	15K 3W			PW3-15K 3G-15K
R118	1meg			
R119	2.2meg			
R120	200Ω 2W			
R121	330Ω			
R122	100Ω			
R123	150Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L24	40KC	230V094H01					
L25	40KC	230V094H01					
L26	40KC Discriminator	235V088H01					

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	117V ② .3A	120V ③ 6.3V .40A DC	② 2A	410V026H01	P-3045	PA8421	26R38	R-30X	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Westinghouse PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M9	.040A	296V006H03	1N1763	2F4	SR200	Silicon

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA Westinghouse FUSE	Westinghouse HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M10	3AG	⅛A 125V P/T S/B	758V003H56		315.500 (3AG ⅛A 125V P/T S/B)		MDV ⅛	

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M11	Relay	753V019H01	Audio
M12	Motor	753V018H01	Motor
M13	Transducer	753V168H02	Models H-K4050, 1, 2, 3, H-K4150, 1, 2, 3

VHF TUNER PARTS LIST AND DESCRIPTIONS

470V071H01

TUBES

ITEM No.	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • USE	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6ER5/GG	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27	N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202	27	N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	27	N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C204	27	N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	30	7%	#690V004H18						
C206	28			NPO-DI 25	TCZ-27	C10Q27C	CCTO-27	CNO-427	10TCC-Q27
C207	1000			EF-001	MFT-1000		CCF-102	CT280A	
C208	1.8-7		#690V004H97		829-7				
C209	100			EF-0001	MFT-100				
C210	.3-5				829-3		CV-1	CT565	
C211	33			NPO-DI 33	DTZ-33	C10Q33	CCTO-330	CNO-433	10TCC-Q33
C212	.3-5				829-3		CV-1	CT565	
C213	.82	10%	#690V026H15						
C214	1000			BPD-001	DD-103	BYA101X	CCD-102	B-210	5HK-D10
C215	47	N750 5%			DTZ-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C216	1000			EF-001	MFT-1000		CCF-102	CT280A	
C217	1000			BPD-001	DD-103	BYA101X	CCD-102	B-210	5HK-D10
C218	7.25	N80	#690V026H22				*		
C219	18	N220	#690V033H36				*		10TCR-Q18
C220	1000			EF-001	MFT-1000		CCF-102	CT280A	
C221	1000			EF-001	MFT-1000		CCF-102	CT280A	

Westinghouse Part Number.
* Not normally is distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	47Ω			
R202	1000Ω			
R203	2700Ω			
R204	220K			
R205	1000Ω			
R206	22K			
R207	10K			
R208	4700Ω			

COILS (RF-IF)

ITEM No.	USE	Westinghouse PART No.	NOTES
L201	Ant. Assembly	690V026H14	
L202A	Ant., RF, Mixer & Osc.	690V026H02	Channel 2
B	"	690V026H03	Channel 3
C	"	690V026H04	Channel 4
D	"	690V026H05	Channel 5
E	"	690V026H06	Channel 6
F	"	690V026H07	Channel 7
G	"	690V026H08	Channel 8
L202H	Ant., RF, Mixer & Osc.	690V026H09	Channel 9
I	"	690V026H10	Channel 10
J	"	690V026H11	Channel 11
K	"	690V026H12	Channel 12
L	"	690V026H13	Channel 13
L203	Fine Tuning	690V026H01	Core (with Grommet) #690V026H23
L204	Mixer Plate	690V026H00	

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
	Arm Fine Tuner	690V026H22	Assembly, Less Strips
	Shaft & Coil Support	690V026H24	Drum Retaining, Front
	Spring	690V004H95	Drum Retaining, Rear
	Spring	690V004H96	Fine Tuner Arm
	Spring	690V004H94	

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • USE	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	6BZ6	V8	Audio Output	6AQ5A
V2	2nd Video IF Amp.	6BZ6	V9	Vert. Mult. - Vert. Output	6EM7
V3	3rd Video IF Amp.	6DK6	V10	Horiz. Mult.	6CG7
V4	Video Output - Sync Sep.	6EB8	V11	Horiz. Output	6DQ6B
V5	AGC Keying	6AU6	V12	Damper	6AX4GTB
V6	Sound IF Amp. - Noise Inv.	6FV8	V13	H.V Rectifier	1G3GT/1B3GT
V7	Audio Detector	6DT6	V14	L.V Rectifier	5U4GB

PICTURE TUBE

ITEM No.	REPLACEMENT DATA Westinghouse PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V15	23FP4					

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	⌀100	350	218V046H01	AFH4-68-90	D0473	FP430, 29	TMQ-4383	TVL-4625	
B	⌀40	350							
C	⌀4	350							
D	100	50							
C2A	⌀100	350	218V045H01	AFH4-67-85	D0479.2	FP419, 80	TMQ-4310	TVL-3842.6 TVA-1718	
B	⌀30	350							
C	⌀10	350							
D	40	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	.47	200V		P288N-47		CUB2P47	EDP-3-474	GEM-2047	2TM-P47
C4	4700			BPD-0047	DD-472	BYA104M7M	CCD-472	B-347	5HK-D47
C5	6.8	NPO 5%		NPO-DI 6.8	DTZ-6R8	C10Y6R8C	CCTO-6R8	CNO-568	10TCC-Y68
C6	10	NPO 5%		NPO-DI 10	DTZ-10	C10Y1C	CCTO-100	CNO-410	10TCC-Q10
C7	47	NPO 5%			DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C8	10	NPO 5%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C9	43	NPO 5%	#215V300H38		TCZ-43	C10Q43C			
C10	800			BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C11	680			BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C12	.47	200V				CUB2P47	EDP-3-474	GEM-2047	2TM-P47
C13	800			BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C14	680			BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C15	680			BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C16	2.2	5%		NPO-RI 2.2	TCZ-2R2	C10Y2C	CCTO-2R2	CNO-522	10TCC-Y22
C17	68	NPO 10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C18	1000			BPD-001	DD-102	BYA102X	CCD-102	B-210	5HK-D10
C19	1000			BPD-001	DD-103	BYA102X	CCD-102	B-210	5HK-D10
C20	680			BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C21	800			BPD-0008	DD-881	L10T8	CCD-801	B-382	10TS-T80
C22	1500			BPD-0015	DD-152	BYA101X5	CCD-152	B-215	5HK-D15
C23	680			BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C24	1000			BPD-001	DD-102	BYA10DX	CCD-102	B-210	5HK-D10
C25	3.3	N750 ±.25mmf							10TCU-V33
C26	10	NPO 5%		NPO-DI 10	DTN-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C27	.1	200V		P288N-1	DF-104	CUB2P1	EDP-3-104	GEM-201	2TM-P10
C28	56	N220 10%	#215V015A60				*		10TCR-Q56
C29	39	N220 10%	#215V013A90				*		10TCR-Q39
C30	22	N220 10%	#215V012A20				*		10TCR-Q22
C31	.22	400V		P488N-22		CUB4P44	4DP-5-224	GEM-4023	4TM-P22
C32	1000			BPD-001	DD-102	BYA10X	CCD-103	B-210	5HK-D10
C33	10000			BPD-01	DD-103	BYA10X	CCD-103	B-110	5HK-E10
C34	.15	200V		P288N-15		CUB3P15	EDP-3-154	GEM-2015	2TM-P15
C35	1000			BPD-001	DD-102	BYA102X	CCD-102	B-210	5HK-D10
C36	4.7	10%		NPO-RI 4.7	TCZ-4R7	C10Y4.7C	CCTO-4R7	CNO-547	10TCC-Y47
C37	4.7	10%		NPO-RI 4.7	TCZ-4R7	C10Y4.7C	CCTO-4R7	CNO-547	10TCC-Y47
C38	4700			BPD-0047	DD-472	BYA104M7M	CCD-472	B-347	5HK-D47
C39	4700			BPD-0047	DD-473	BYA104M7M	CCD-472	B-347	5HK-D47
C40	1000			BPD-001	DD-102	BYA10DX	CCD-103	B-210	5HK-D10
C41	.047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C42	.01	600V		P688N-01	D6-103	CUB6P1	6DP-2-103	GEM-211	6TM-R10
C43	1500			BPD-0015	DD-152	BYA10DX5	CCD-153	B-215	5HK-D15
C44	6800			BPD-0068	DD-681	BYA10D68	CCD-682	B-268	5HK-D68
C45	.0047	600V		P688N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C46	.047	600V	Note 1	P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C47	2.2mfd	3V	Note 1		UK-225				HY-450
C48	2300			BPD-0033	D6-332	BYA10D33	CCD-332	B-233	5HK-D33
C49	10000			BPD-01	DD-103	BYA10X	CCD-103	B-110	5HK-E10
C50	10000			BPD-01	DD-103	BYA10X	CCD-103	B-110	5HK-E10
C51	330			BPD-00033	DD-331	L10T33	CCD-331	B-333	10TS-T33
C52	.015	600V 10%		V84C6S15-10%	DD18-153	P68S15	6DP-2-153		6TM-S15
C53	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C54	.0027	600V	Note 2	V84C6D3-10%	DD-272	DPM6D27	6DP-1-272	GEM-6233	6PS-D27
C55	.022	600V		P688N-022	DD-223	CUB6S22	6DP-3-223	GEM-6233	6TM-S22
C56	.22	600V		P688N-22		CUB6P22	6DP-5-224	GEM-6023	6TM-P22
C57	10000			BPD-01	DD-103	BYA10X	CCD-103	B-110	5HK-E10
C58	.1	200V		P288N-1	DF-104	CUB2P1	EDP-3-104	GEM-201	2TM-P10
C59	15-180		#217V505H01				463		
C60	68	NPO 10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C61	1000	10%		1469-001	DD-102	SR5D	CCD-102	MCB255	5HK-D10
C62	10000			BPD-01	DD-103	BYA10X	CCD-103	B-110	5HK-E10
C63	.047	400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C64	470	5000V N2200 5%	#215V300H67						
C65	.0047	600V		P688N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C66	.047	600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C67	.033	600V		P688N-033	DD-333	CUB6S33	6DP-3-333	GEM-6133	6TM-S33
C68	2300			BPD-0033	D6-332	BYA10D33	CCD-332	B-233	5HK-D33

Westinghouse Part Number.
* Not normally is distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.
Note 2. Early production Chassis use .0033 in this application.

TV PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS - IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg		270V078H04	F1-51				Tone Note 1
B	500K			RPL-41 *	RTV-735		UE4216-6	Volume Note 1
C	Switch			Not Req.				
R2	200K		270V111H04	F1-50				Brightness
R3	30K		270V011H04	F1-49				Contrast
	20K Tap							
R4A	40K		270V099H02	F1-29				Horiz. Hold
B	5meg			R2-53		QJ-1541	UE4212	Height
R5A	2meg		270V099H01	F1-67	RTV-736	QJ-1540	UE4213	Vert. Hold
B	500K			R3-40				Vert. Linearity
R6A	50K		270V098H01	RX-31	B47-50K-6	B11-123	PTA841	AGC
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

◆ "CONCENTRIKIT" Equivalent: K-2 Kit with Base Elements and Shafts: B11-123, P9-101 (Panel)
(Not available as a factory assembled unit). B11-141, R15-005 (Rear)
†† "CONCENTRIKIT" Equivalent: K-2 Kit with Base Elements and Shafts: B11-139, P9-101 (Panel)
(Not available as a factory assembled unit). B11-133, R15-005 (Rear)
■ "STA-LOC" Equivalent: FA181, RUP85A *, OS437A.
▲ "STA-LOC" Equivalent: FA541, RU56L, OK0062, 1K25.
▲ "STA-LOC" Equivalent: FA361, RU55L, OK0062, 1K25.
Note 1. Chassis V-2411-1, -3, -5 use 500K Volume with Switch (Part #270V100H01). * File flat for knob.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	5600Ω 5W	PW5-5600	5W-5Ω-5600	
R8	13meg			
R9	2meg			
R10	2. 2meg			
R11	5100Ω			
R12	5600Ω			
R13	220K			
R14	820Ω			
R15	270Ω			
R16	47Ω			
R17	100K			
R18	120K			
R19	47K			
R20	470Ω			
R21	12Ω			
R22	10K 3W	PW3-10K	3Ω-10K	
R23	47K 1W			
R24	150K			
R25	150Ω			
R26	220Ω			(150Ω) *
R27	3900Ω			
R28	22K			
R29	56K			
R30	22K			#690V011H08
R31	2200Ω 2W			
R32	4700Ω 4W	PW5-4700	4Ω-4700	
R33	20K 2W			
R34	12Ω			
R35	4700Ω			
R36	100K			
R37	5600Ω			(1000Ω) *
R38	180K			
R39	120K			
R40	12K			
R41	470K			
R42	100K 1W			
R43	12K			
R44	470K			
R45	120K			
R46	560K			
R47	47K 1W			
R48	820Ω			
R49	470K			
R50	1000Ω			
R51	1000Ω			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R53	330Ω 1W			
R53	470Ω			
R54	47K 2W			
R55	1. 5meg			
R56	680Ω			
R57	68K 2W			
R58	220K			
R59	2. 2meg			
R60	22K			
R61	150K			
R62	100K			
R63	120K			
R64	2. 2meg			
R65	24K			
R66	1meg 1W			
R67	1. 2meg			
R68	47K 1W			
R69	150Ω			
R70	1meg			
R71	330K			
R72	470Ω 2W			
R73	560Ω			
R74	560Ω			
R75	8Ω (Cold)			
R76	680K			
R77	47K 1W			
R78	12K 2W			
R79	1000Ω 1W			
R80	56K			
R81	47K			
R82	1100Ω			
R83	180K			
R84	150Ω			
R85	1meg			
R86	18K 2W			
R87	4700Ω 2W			
R88	39K 1W			
R89	4. 7Ω			
R90	470Ω 3W	PW3-470	3Ω-470	
R91	470Ω 5W	PW3-470	3Ω-470	
R92	330K			
R93	3300Ω			
R94	56K			
R95	27K			
R96	1meg			

* Value used in early production chassis. # Westinghouse Part Number

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	Vert. Integrator	1500mmf, 2200mmf, 47K	219V037H02	Note 1
K2	Horiz. AFC Network	68mmf, 68mmf, 390mmf,	219V028H05	
		390mmf, 680mmf, 12K, 12K,		
		680K, 1meg		

Note 1. Early versions use Part Number #219V029H01 in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	41. 25MC Trap	230V069H01				TE236	
L2	47. 25MC Trap	230V076H02				TE260	
L3	1st Video IF	235V049H01				TE253	
L4	47. 25MC Trap	230V076H01				TE259	
L5	2nd Video IF	235V048H01				TB644	
L6	39. 75MC Trap	230V030H01				TE230	
L7	3rd Video IF	235V049H01				TB644	
L8	4th Video IF	235V069H01				TE255	
L9	RF Choke (14uh)	230V019H15		4624	RTC-8524	T862	
L10	RF Choke (14uh)	230V019H25		4624	RTC-8524	T862	
L11	RF Choke (4. 7uh)	230V019H04	SW-631	4609	RTC-8519	T977	
L12	Peaking (180uh)	230V034H03	TV-136	6120	RTC-8575	T343	
L13	Peaking (500uh)	230V034H04	TV-188	6174	RTC-8592	T353	
L14	4. 5MC Trap	230V030H02				TE231	

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L15	Peaking (720uh)	230V034H11	TV-206	6148	RTC-8583	T356	
L16	Peaking (240uh)	230V019H16	TV-185	6181	RTC-8598	T345	
L17	1st Sound IF	230V030H08					
L18	2nd Sound IF	235V046H01				TB643	
L19	Quadrature	230V031H01				TE234	
L20	RF Choke (14uh)	230V019H10		4624	RTC-8524	T862	
L21	RF Choke (14uh)	230V019H10		4624	RTC-8524	T862	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.
L22	Horiz. Stabilizer	230V032H01					HS-16		TA140

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ^u)	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L23	.300A	20Ω	.5 Hy.	430V064H01		C-2343		C-34X	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ⑥ 1.75A	560VCT ⑤ 300A DC	5V ④ 3A	410V028H01				R-87BC	
	SEC. 3	SEC. 4	SEC. 5						
	6.3V ⑥ 8A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	430V039H02			VO-108 ①②		A-108X	
	Alt. Vert. Output	430V039H01					A-108X	
T3	Yoke (Horiz. 20MH) (110°) (Vert. 32MH)	490V006H02 ③		PCM-1834 ⑤⑦	DY-46A ⑤⑦	Y-53 ④⑤	Y-82 & NW1	
	Rear Cover and Centering Device	781V396H01						
	Yoke Clamp	768V014H03						
T4	Horiz. Output	493V006H01				FLY-96 *	D-608 *	

① Drill new mounting hole(s).
② Remove green lead of yoke from ground. Connect blue lead to plate, red lead to junction of C32, C34 and orange lead of yoke, yellow to B + and green lead of yoke.
③ Less lead and resistors.
④ Connect yoke terminal #2 to horizontal output transformer #4, yoke terminals #1 and #3 to horizontal output transformer terminal #5, yoke terminal #7 to junction of C65, C66, and R88.
⑤ Connect yoke terminal #3 to horizontal output terminal #4, yoke terminals #2 and #7 to horizontal output transformer terminal #5, yoke terminal #1 to junction of C65, C66, and R88.
⑥ Requires new rear cover and centering device.
⑦ Use original yoke damping network.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
2				6	6
1				4	5
4				4	4
6				T	X
3				3	3
T				2	2
1				1	1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Westinghouse PART No.	Merit PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	8600Ω	6-8Ω	430V083H01	A-2901	24308	S-53X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Westinghouse PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6" x 9"	PM	6-8Ω	570V070H01①	69A2Z8	① Used in Models H-K4150, H-K4110, U
SP2	5"	PM	10-12Ω	570V047H02 ①②	5AU2I2	② Used in Models H-K4050, H-K4051, H-K4052, H-K4053, H-K4151, H-K4153, H-K4153, H-K4111, U,
	8"	PM	6-8Ω	570V043H03 ②③	8A3IZ5. 5	H-K4112, U, H-K4113, U, H-K4210, U, H-K4211, U, H-K4212, U, H-K4213, U, H-K4214, U, H-K4215, U
	4"	PM	6-8Ω	570V068H01④	4AIZ8	③ Used in Models H-K4010, U, H-K4011, U, H-K4012, U, H-K4013, U
						④ Used in Models H-T3710, U, H-T3711, U, H-T3712, U

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA Westinghouse PART No. FUSE	Westinghouse PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	N	3¼A 125V 8/B	758V001H07	758V002H07	33303. 5 (N 3¼A 125V 8/B)	348018	N 3¼	HN 3¼ to 3¼
M2	1½"	length of #28 wire						

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA Westinghouse PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M3		296V004H01 *	6GC1 *			* Dual Selenium, Common Cathode
M4	1N295 (1N87A)†	296V006H01 *		1N295 *	1N295 *	* Diode, Video Detector, Pigtail
						† Alternate

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M5	Tuner	470V071H01	VHF, Chassis V-2411-1, -3, -5, -6
	Tuner	470V063H02	VHF with UHF Provisions, Chassis V-2411-2, -4
	Tuner	472V037H01	UHF
M6	Relay	753V021H01	Stepper
M7	Switch	758V057H01	Remote Manual (SPDT Slide Type)
M8	Motor Drive	787V254H01	Assembly, Includes Motor (Part #753V023H01), and Motor Hold Switch

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	H-T3710, U	H-T3711, U	H-T3712, U	H-K4010, U	H-K4011, U	H-K4012, U	H-K4013, U	H-K4050	H-K4051	H-K4052	H-K4053	H-K4110, U	H-K4111, U	H-K4112, U	H-K4113, U	H-K4150	H-K4151	H-K4152	H-K4153	H-K4210, U	H-K4211, U	H-K4212, U	H-K4213, U	H-K4214, U	H-K4215, U
Safety Glass	630V008H01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mask-Picture Tube	610V021H01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
! Knob-VHF Channel Selector	550V158H01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
* Knob-VHF Channel Selector	550V127H02	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X
* Knob-UHF Channel Selector	550V126H02	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X
* Knob-UHF Channel Indicator	550V128H02	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X
Knob-Fine Tuning	550V167H01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Volume, Contrast	550V123H01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Volume-Rear	550V124H06	X	X	X	X	X	X	X	X	X	X	X	X	X												
Knob-Tone-Rear	550V124H05														X	X	X	X	X	X	X	X	X	X	X	X
Knob-Brightness-Rear	550V124H03	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Vert. Hold, Horiz. Hold	550V166H01	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X	X	X
Knob-Vert. Hold, Horiz. Hold	550V166H02								X	X	X	X														
Knob-Manual-Remote	550V170H01								X	X	X	X														
Knob-Ornamental	690V024H19																									

! VHF Models Only
* UHF VHF Models Only

CABINET PART NO.	MODEL NO.
516V210H01	H-T3710, U
516V210H02	H-T3711, U
516V210H03	H-T3712, U
516V250H01	H-K4010, U
516V189H01	H-K4011, U
516V250H02	H-K4012, U
516V190H01	H-K4013, U
516V180H01	H-K4110, U
516V181H01	H-K4111, U

CABINET PART NO.	MODEL NO.
516V183H01	H-K4112, U
516V182H01	H-K4113, U
516V185H01	H-K4210, U
516V186H01	H-K4211, U
516V185H02	H-K4212, U
516V187H01	H-K4213, U
516V184H01	H-K4214, U
516V184H02	H-K4215, U
516V188H01	H-K4050

CABINET PART NO.	MODEL NO.
516V188H02	H-K4051
516V188H03	H-K4052
516V188H04	H-K4053
516V249H01	H-K4150
516V194H01	H-K4151
516V195H01	H-K4152
516V196H01	H-K4153

VHF TUNER ALIGNMENT INSTRUCTIONS

470V063H02

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage Lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201, A208, A210, A212, A219 thru A222 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO # 2531
A217, A218 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Coils not containing slugs are adjusted by bending toward or away from switch wafer.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Across antenna terminals.	209.75MC (400~ 30% AM Mod.)	13	Across Video Det. Load	A201	Adjust for MINIMUM scope indication.
2.	"	"	203.75MC	12	"	A202	"
3.	"	"	197.75MC	11	"	A203	"
4.	"	"	191.75MC	10	"	A204	"
5.	"	"	185.75MC	9	"	A205	"
6.	"	"	179.75MC	8	"	A206	"
7.	"	"	173.75MC	7	"	A207	"
8.	"	"	81.75MC	6	"	A208	"
9.	"	"	75.75MC	5	"	A209	"
10.	"	"	65.75MC	4	"	A210	"
11.	"	"	59.75MC	3	"	A211	"
12.	"	"	53.75MC	2	"	A212	"

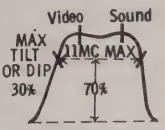


FIG.201

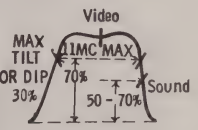


FIG.202

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect the negative lead of a 4.5 Volt bias supply to point ⊕ . Positive to chassis.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point ⊕ . Low side to chassis.	A213	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
14.	"	"	"	213MC	"	"	A214, A215	If necessary, adjust by expanding or compressing coil turns for maximum symmetrical response centered about 113MC marker.
15.	"	"	"	210MC 216MC	"	"	A216	Adjust spacing between "gimmick" wires (A216) for proper bandwidth as in Fig. 201.
16.	"	"	177MC	177MC	7	"	A217, A218	Adjust to obtain correct tilt on top of curve as in Fig. 203 to compensate for the tuning effect of channel 13. Repeat step 14, retouch only SLIGHTLY. Repeat step 16.
17.	"	"	85MC	87.75MC	6	"	A219, A220	Adjust for approximate correct bandwidth with sound carrier between 50 and 70% as in Fig. 202.
18.	"	"	"	83.25MC	"	"	A221	Adjust for maximum gain at 83.25MC marker. Repeat step 17, adjust A219 and A220 only SLIGHTLY.
19.	"	"	Not Used	43.5MC (400~ 30% AM Mod.)	4	Across Video Det. Load	A222	Adjust for MINIMUM 400~ indication on scope.

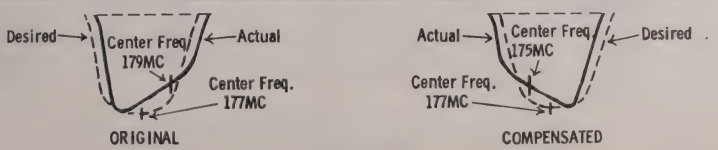
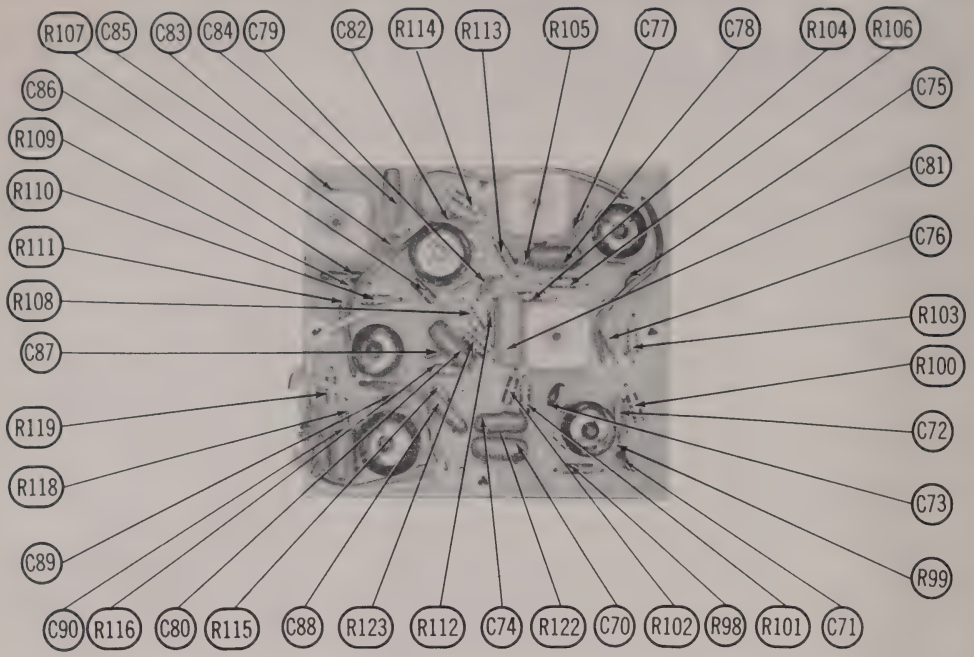
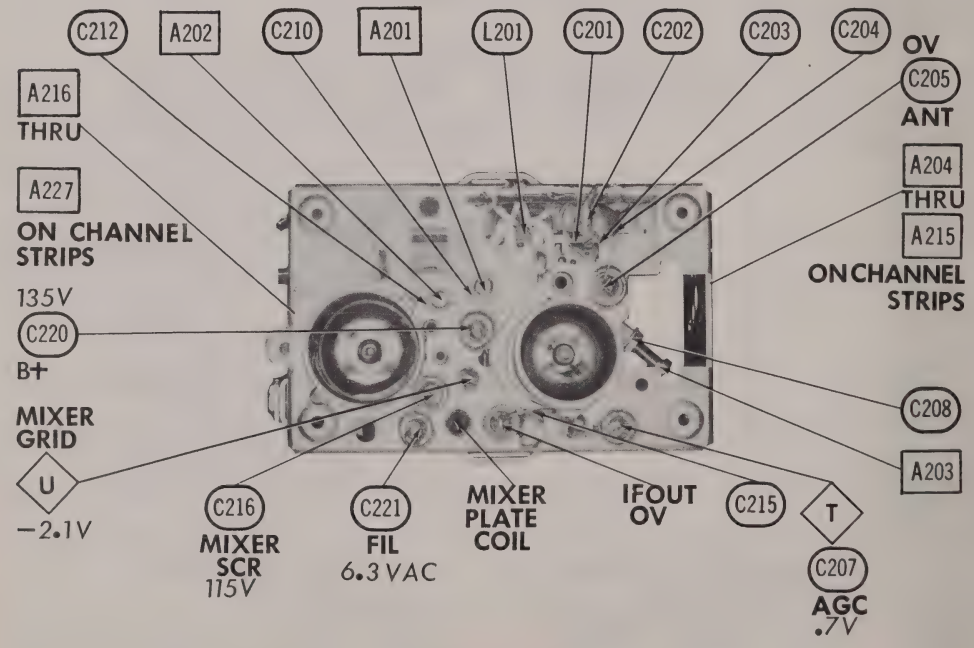


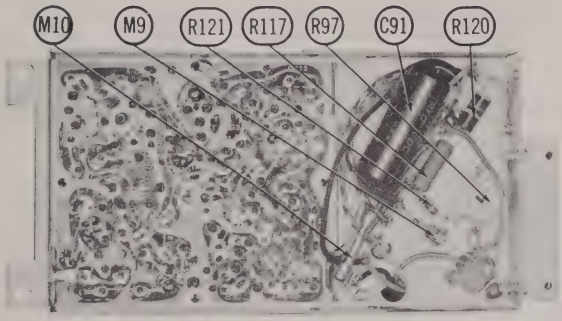
FIG. 203

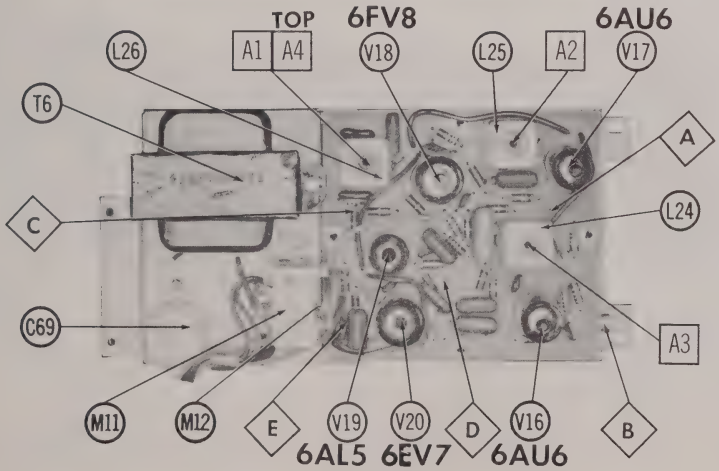


REMOTE CONTROL RECEIVER PRINTED BOARD

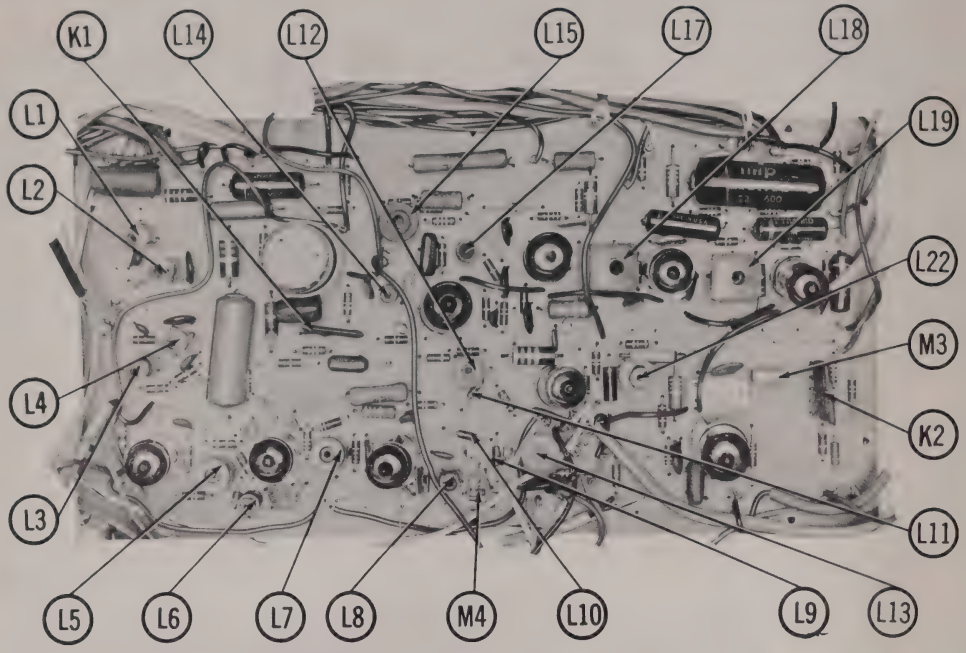


VHF TUNER 470V071H01 - TOP VIEW

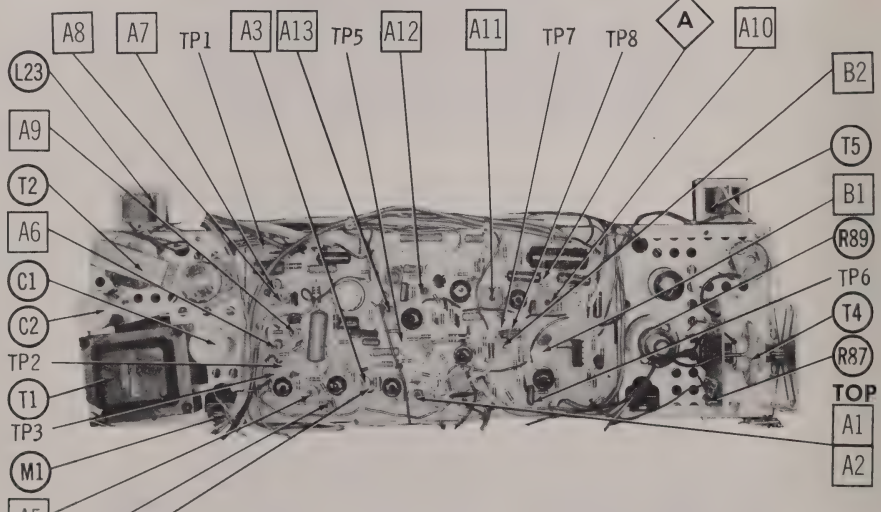




REMOTE CONTROL RECEIVER

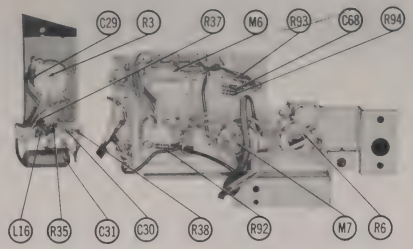


TV PRINTED BOARD - INDUCTOR, MISC. IDENT.

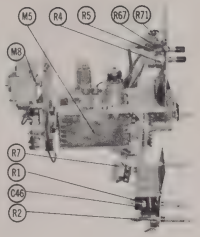


TP1	.7V	TUNER AGC	TP5	-.7V	GRID-VIDEO OUTPUT
TP2	0V	IF AGC	TP6	-.2V	HORIZ AFC GRID
TP3	0V	1st IF GRID	TP7	255V	HORIZ MULT B+
TP4	0V	3rd IF GRID	TP8	255V	HORIZ MULT STAB COIL

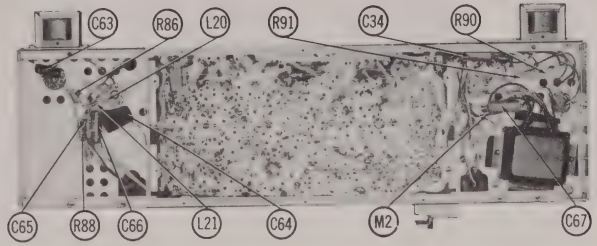
TV CHASSIS - TOP VIEW



CONTROL PANEL



VHF TUNER—POWER TUNING ASSEMBLY

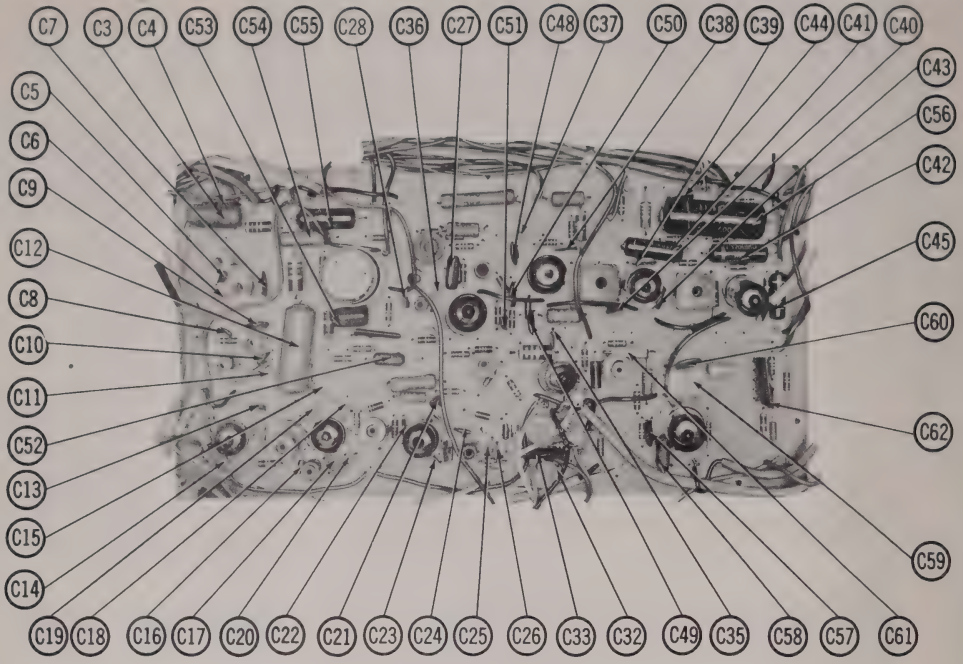


TV CHASSIS BOTTOM VIEW

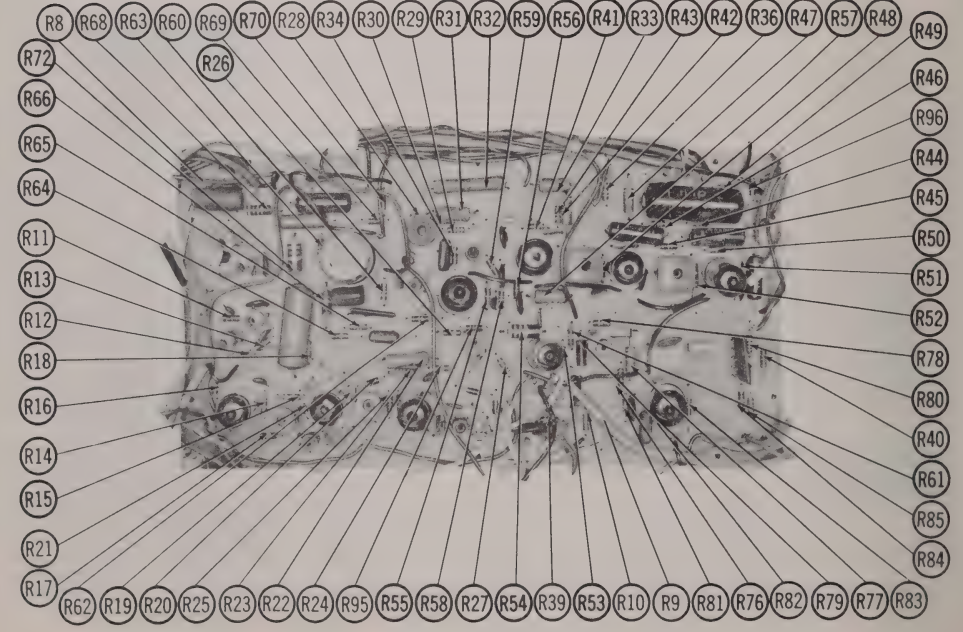
TV RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	225K	47Ω	FIL	FIL	▪282Ω	▪282Ω	0Ω		
V2	6BZ6	60K	INF	FIL	FIL	†490Ω	†490Ω	▪12Ω		
V3	6DK6	.1Ω	150Ω	FIL	FIL	†10K	†40K	0Ω		
V4	6EB8	0Ω	2.4meg	†80K	FIL	FIL	12Ω	4100Ω	†12K	†6500Ω
V5	6AU6	†20K	40K	FIL	FIL	2.2meg	†20Ω	40K		
V6	6FV8	3.9meg	†20K	6800Ω	FIL	FIL	†30K	†30K	0Ω	470K
V7	6DT6	4.8Ω	820Ω	FIL	FIL	†940K	†47K	560Ω		
V8	6AQ5A	NC	330Ω	FIL	FIL	†980Ω	†1500Ω	• 1000Ω		
V9	6EM7	•1.4meg	†770Ω	470Ω	•1.7meg	•†1.4meg	0Ω	FIL	FIL	
V10	6CG7	†57K	•200K	1100Ω	FIL	FIL	†48K	2.1meg	1100Ω	0Ω
V11	6DQ6B	NC	FIL	NC	†18K	1meg	NC	FIL	0Ω	TOP CAP †16Ω
V12	6AX4GTB	NC	NC	5meg	NC	†20Ω	NC	FIL	FIL	
V13	1G3GT / 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †715Ω
V14	5U4GB	TP	¶ 20K	NC	22Ω	NC	25Ω	NC	¶ 20K	
V15	23FP4	FIL	120K	†1meg	0Ω	NC	NC	• 210K	FIL	
V201	6ER5/GG	0Ω	3.5meg	FIL	FIL	†6600Ω	0Ω	0Ω		
V202	6CG8A	4700Ω	†15K	0Ω	FIL	FIL	†6600Ω	†27K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

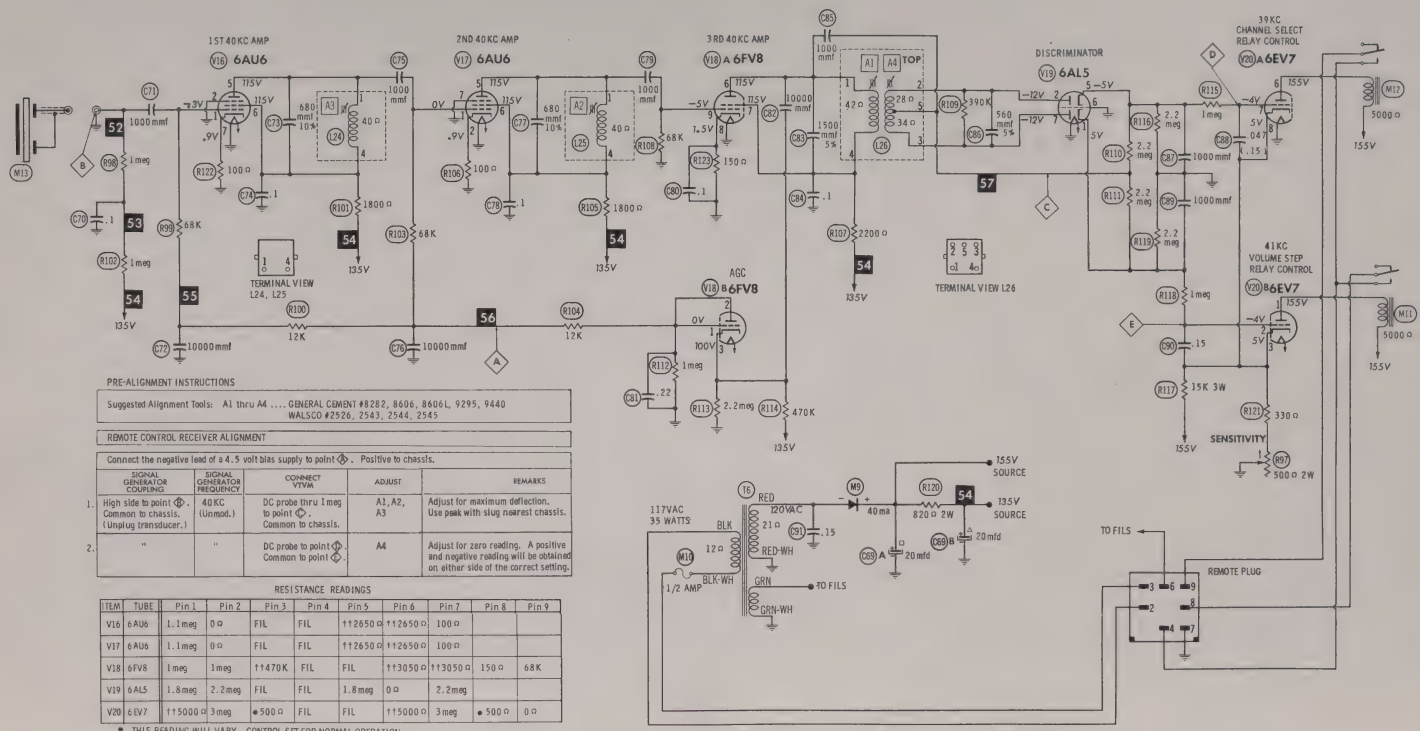
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 8 OF V14.
† MEASURED FROM PIN 3 OF V12.
▪ MEASURED FROM PIN 2 OF V2.
NC NO CONNECTION TP TIE POINT



TV PRINTED BOARD - CAPACITOR IDENT.



TV PRINTED BOARD - RESISTOR IDENT.



PRE-ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: A1 thru A4 .... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

REMOTE CONTROL RECEIVER ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point ⓐ. Positive to chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CONNECT VTVM	ADJUST	REMARKS
1.	High side to point ⓑ. Common to chassis. (Unplug transducer.)	40 KC (Unmod.)	DC probe thru 1 meg to point ⓒ. Common to chassis.	A1, A2, A3	Adjust for maximum deflection. Use peak with slug nearest chassis.
2.	"	"	DC probe to point ⓒ. Common to point ⓓ.	A4	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V16	6AU6	1.1meg	0Ω	FIL	FIL	††2650Ω	††2650Ω	100Ω		
V17	6AU6	1.1meg	0Ω	FIL	FIL	††2650Ω	††2650Ω	100Ω		
V18	6FV8	1meg	1meg	††470K	FIL	FIL	††3050Ω	††3050Ω	150Ω	68K
V19	6AL5	1.8meg	2.2meg	FIL	FIL	1.8meg	0Ω	2.2meg		
V20	6EV7	††5000Ω	3meg	•500Ω	FIL	FIL	††5000Ω	3meg	•500Ω	0Ω

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
†† MEASURED FROM OUTPUT OF M9.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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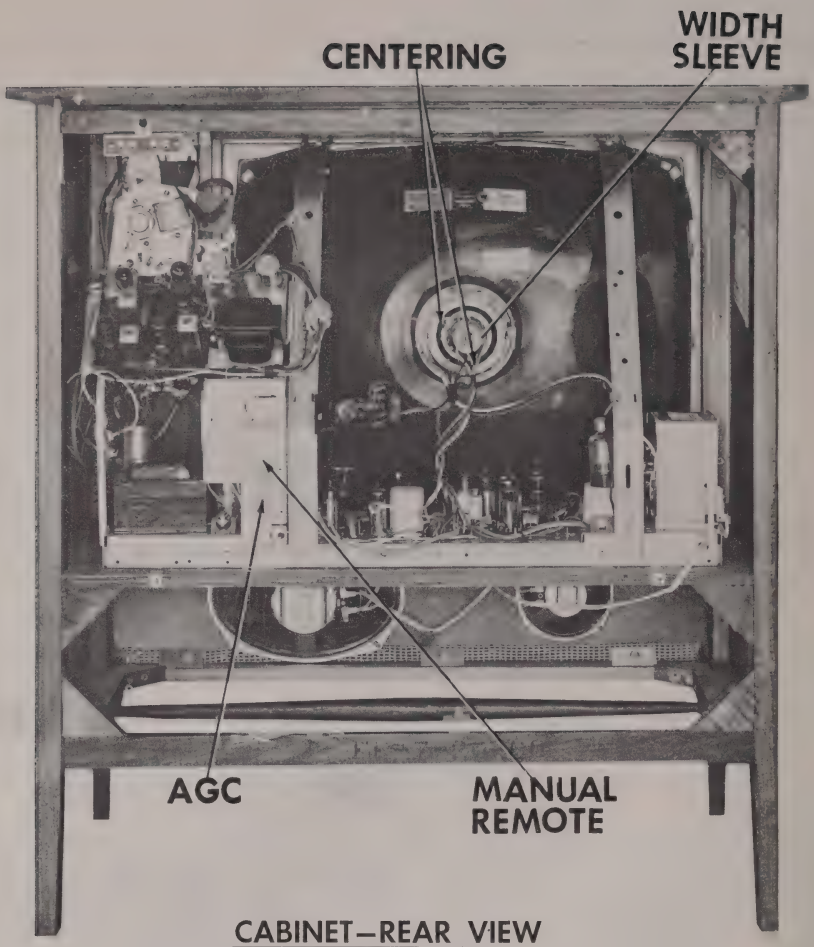
REMOTE CONTROL RECEIVER V-2408

WESTINGHOUSE CHASSIS V-2411-1, V-2411-2, V-2411-3, V-2411-4, V-2411-5



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short clip lead across the Horizontal Stabilizer Coil (L22).

Set the Horizontal Hold Control to the center of its range.

Connect the DC probe of a VTVM to TP-6. Common to chassis.

Tune in a TV station and adjust the Horizontal Oscillator Trimmer (B1) for zero volts on the VTVM. If zero can be approached but not reached, set the Horizontal Hold Control slightly to one side of center for zero voltage.

Remove the jumper from L22 and adjust the Horizontal Frequency Slug (B2) for zero reading on the meter. Check lock-in action by switching from channel to channel. The picture should pull into synchronization on all channels.

DISASSEMBLY INSTRUCTIONS

CHASSIS AND PICTURE TUBE ASSEMBLY REMOVAL- MODEL H-K4150

1. Remove 6 push-on type knobs at front.
2. Remove rear cover.
3. Remove antenna terminal board and speaker leads.
4. Remove 6 screws supporting control panel and tuner assembly.
5. Remove pilot lamp lead and mike lead from chassis.
6. Remove 6 chassis bolts.
7. Remove chassis and picture tube assembly.

PHOTOFACT® Folder with CIRCUITRACE®

ARVIN MODELS 30R12, 30R18, (Ch. 1.48101, 1.48102)

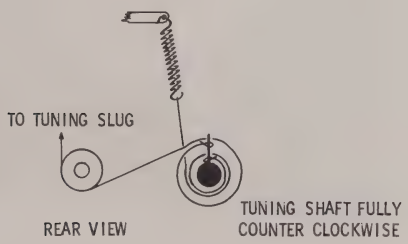
ARVIN MODELS 30R12, 30R18, (Ch. 1.48101, 1.48102)

MODEL 30R12

ARVIN MODELS 30R12, 30R18, (Ch. 1.48101, 1.48102)

TRADE NAME	Arvin Models 30R12, 30R18 (Ch. 1.48101, 1.48102)
MANUFACTURER	Arvin Industries, Inc., Columbus, Indiana
TYPE SET	AC-DC Operated 6 Tube FM Receiver
POWER SUPPLY	105 — 125 Volts AC-DC
TUNING RANGE—FREQ. MOD.	88 — 108MC RATING 29 Watts, .29 Amp. @117 Volts AC

DRIVE CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KI548

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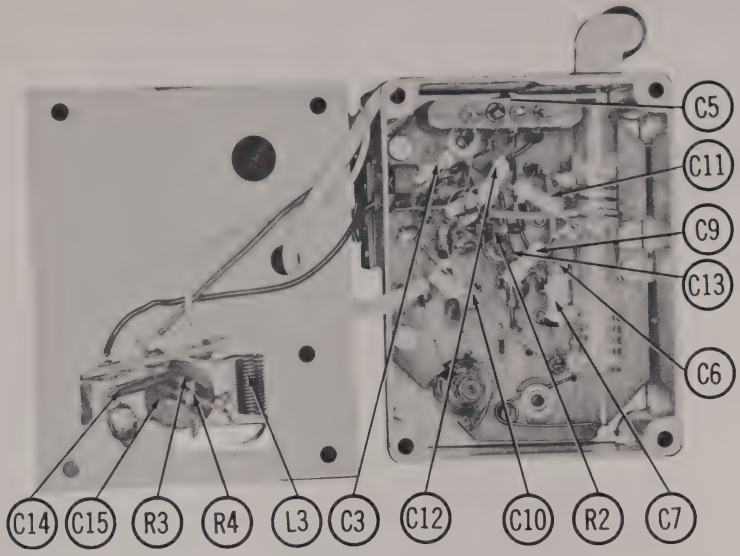
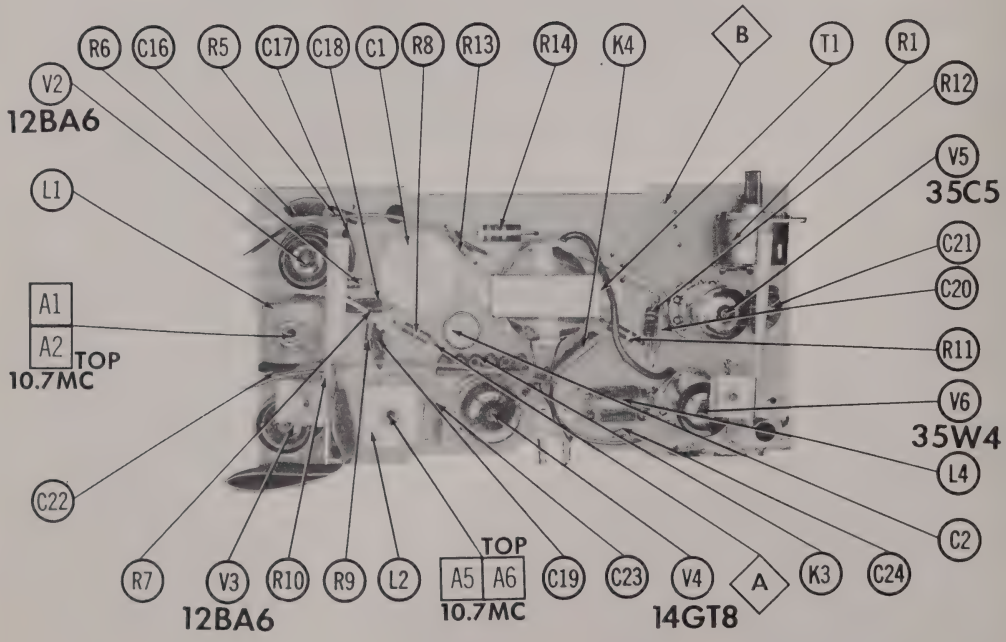
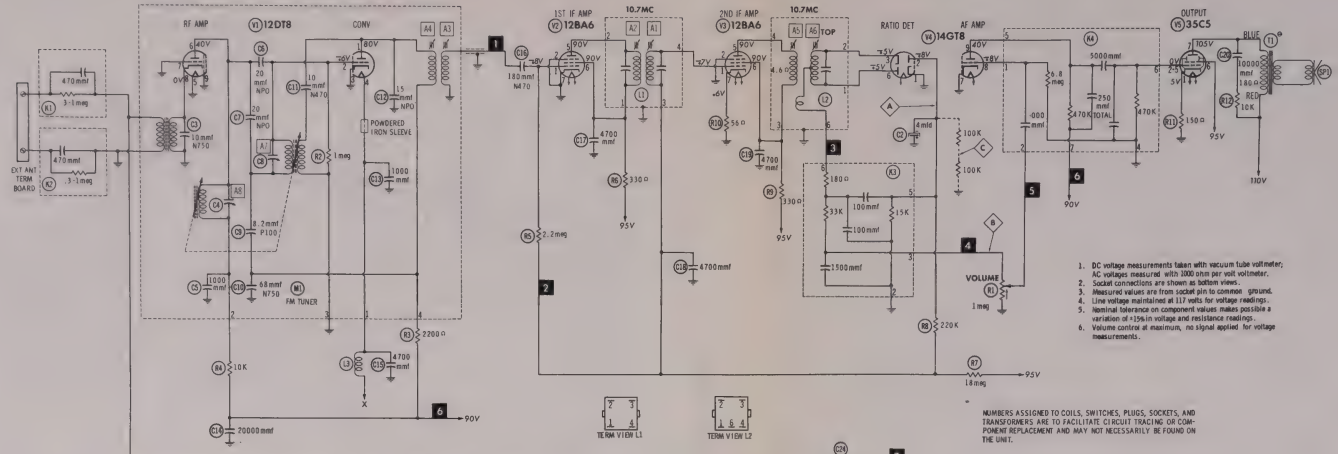
SET 535 FOLDER 3



FM RF SUBCHASSIS-BOTTOM VIEW



PRINTED BOARD-TOP VIEW


RF AMP
V1 12DT8
CONV
1ST IF AMP.
V2 12BA6
10.7MC
2ND IF AMP.
V3 12BA6
10.7MC
RATIO DET
AF AMP
V4 14GT8
OUTPUT
V5 35C5
EXT ANT TERM BOARD
POWDERED IRON SLEEVE
FM TUNER
VOLUME
BLUE
RED
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.
TERM VIEW L1
TERM VIEW L2

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DT8	†350Ω	1meg	0Ω	10Ω	0Ω	†11K	0Ω	.1Ω	0Ω
V2	12BA6	2.4meg	0Ω	42Ω	32Ω	†800Ω	†800Ω	0Ω		
V3	12BA6	235K	0Ω	32Ω	22Ω	†800Ω	†800Ω	56Ω		
V4	14GT8	0Ω	15K	1meg	16Ω	22Ω	1meg	0Ω	6.8meg	†470K
V5	35C5	150Ω	470K	80Ω	42Ω	NC	†470Ω	†180Ω		
V6	35W4	NC	NC	80Ω	113Ω	113Ω	110Ω	¶ INF		

† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
‡ MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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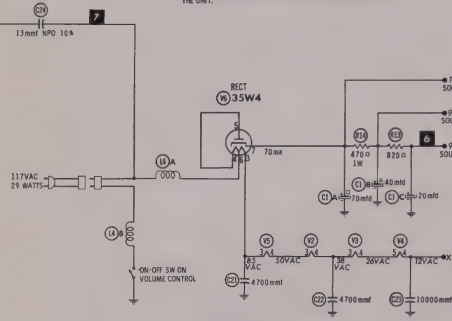
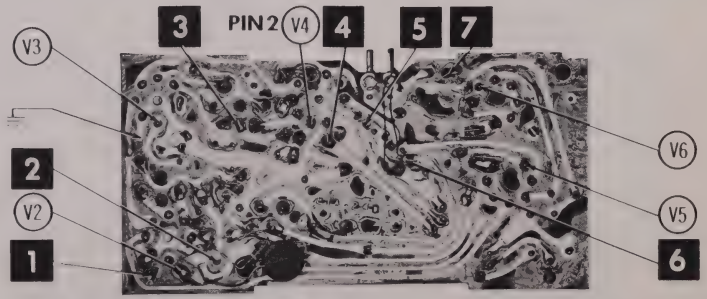


⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

ARVIN MODELS 30R12, 30R18, (Ch. 1.48101, 1.48102)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A5, A6.... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A3, A4..... GENERAL CEMENT #9440
A7, A8..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±½%) resistors in series from point Ⓐ to B-. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	Across antenna terminals with 150Ω in each lead.	10.7MC (Unmod.)	Point of non-interference.	DC probe to point Ⓐ. Common to B-.	A1, A2, A3, A4, A5	Adjust for maximum deflection.
2.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A6	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

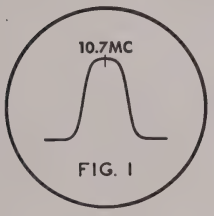
IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

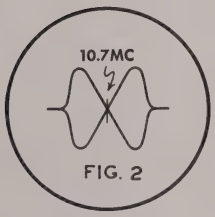
Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

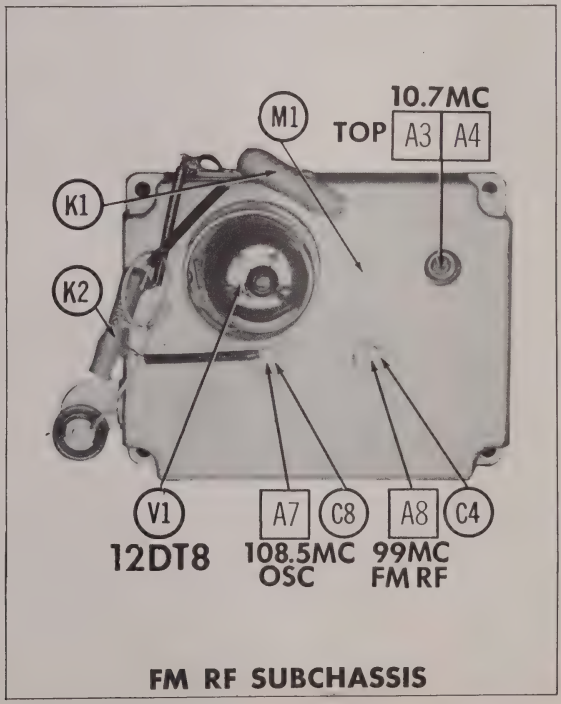
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 150Ω in each lead.	10.7MC (450MC Swp)	Point of non-interference.	Vert. amp. to point Ⓐ. Low side to B-.	A1, A2, A3, A4, A5	Disconnect stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
2.	"	"	"	Vert. amp. to point Ⓑ. Low side to B-.	A6	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A1 for maximum amplitude and straightness of cross-over lines.

RF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	Across antenna terminals with 150Ω in each lead.	108.5MC	108.5MC	DC probe to point Ⓐ. Common to B-.	A7	Adjust for maximum deflection.
4.	"	99MC	99MC	"	Idler Tension Screw	"
5.	"	"	"	"	A8	Adjust for maximum deflection. Check for proper tracking.







FM RF SUBCHASSIS

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	RF Amp. -Converter	12DT8
V2	1st IF Amplifier	12BA6
V3	2nd IF Amplifier	12BA6
V4	Ratio Det. -AF Amp.	14GT8
V5	Output	35C5
V6	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■70	150	43711-13	PWH3-11-30	C0110 †	PFP311, 63	TMT-3136♦	PCL-3441, 2	
B	▲40	150							
C	20	150							
C2	4	50	45238-1	BCD50004	ECPB804	PET1935	TD-4-50	VL-1303	

† Use printed circuit adapters #55277 & 55278.
♦ Use printed circuit adapter kit TMA.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	10 N750		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C4								
C5	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	20 NPO		NPO-SI 20	TCZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C7	20 NPO		NPO-SI 20	TCZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C8								
C9	8.2 P100					*		
C10	68 N750		N750-SI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C11	10 N470					*		
C12	15 NPO		NPO-SI 15	TCZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C13	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C14	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C15	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C16	180 N470	#43957-11				*		
C17	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C18	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C19	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C22	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	13 NPO 10%			TCZ-12	C10Q13C	CCTO-120	CNO-412	10TCC-Q12

♦ Arvin Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	ARVIN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1meg	½	45250-20					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	1meg			
R3	2200Ω			
R4	10K			
R5	2.2meg			
R6	330Ω			
R7	18meg			
R8	220K			
R9	330Ω			
R10	56Ω			
R11	150Ω			
R12	10K			
R13	820Ω			
R14	470Ω 1W			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ARVIN PART No.	REPLACEMENT DATA	
K1	Antenna Filter	470mmf, .3-1meg	47796-2	Centralab Sprague	RC-471 AC1-1
K2	Antenna Filter	470mmf, .3-1meg	47796-2	Centralab Sprague	RC-471 AC1-1
K3	Diode RF Filter	(2) 100mmf, 1500mmf, 180Ω, 15K, 33K	48922		
K4	Audio Coupling	250mmf, 5000mmf, 5000mmf, 470K, 470K, 6.8meg	43743-2	Aerovox Centralab Sprague	PA-512-3 PC-158 DT-5

COILS (RF-IF)

ITEM No.	USE	ARVIN PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	2nd IF	46971-3	FM-256	1463-PC	RTC-9046	T654	
L2	Ratio Detector	45240	FM-257	1465-PC	RTC-9050	T659	
L3	Fil. Choke (1.2uh)	42761-1	BC-562	4602	RTC-8516	T856	
L4A	Line Choke (3.3uh)	24308-1	BC-564	4608	RTC-8518	T858	
B	Line Choke (3.3uh)		BC-564	4608	RTC-8518	T858	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	ARVIN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3100Ω	3-4Ω	42700-5①	A-3025	A-3332	24S48	S-16X	① Alternate Part #46700-6

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	ARVIN PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	46834-2	4A05	

MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M1	FM Tuner	46134	Complete

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial	47703	
Pointer	49239	Dial
Knob	47698	Tuning
Knob	48844	Volume
Cabinet Front	47704-67	
Cabinet Back	48679-42	Persimmon
Cabinet Back	48679-208	Sandstone

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type) ..... Use BELDEN No. 8874

PHOTOFACT® Folder with CIRCUITRACE®

FIRESTONE MODELS
4-C-45, 4-C-50

FIRESTONE MODELS
4-C-45, 4-C-50

MODEL 4-C-50

FIRESTONE MODELS
4-C-45, 4-C-50

TRADE NAME	Firestone Models 4-C-45 (Code 1-9-71/288), 4-C-50 (Code 1-0-TC11)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron 17, Ohio
TYPE SET	Battery Operated Transistorized AM Receiver with Electric Clock
POWER SUPPLY	6 Volts DC (Radio), 1.5 Volts DC (Clock) RATING 10MA @ 6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1620KC 15MA @ 6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A5..... GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2542, 2543, 2544, 2541

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to Base of Converter. Low side to chassis.	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Loop	1620KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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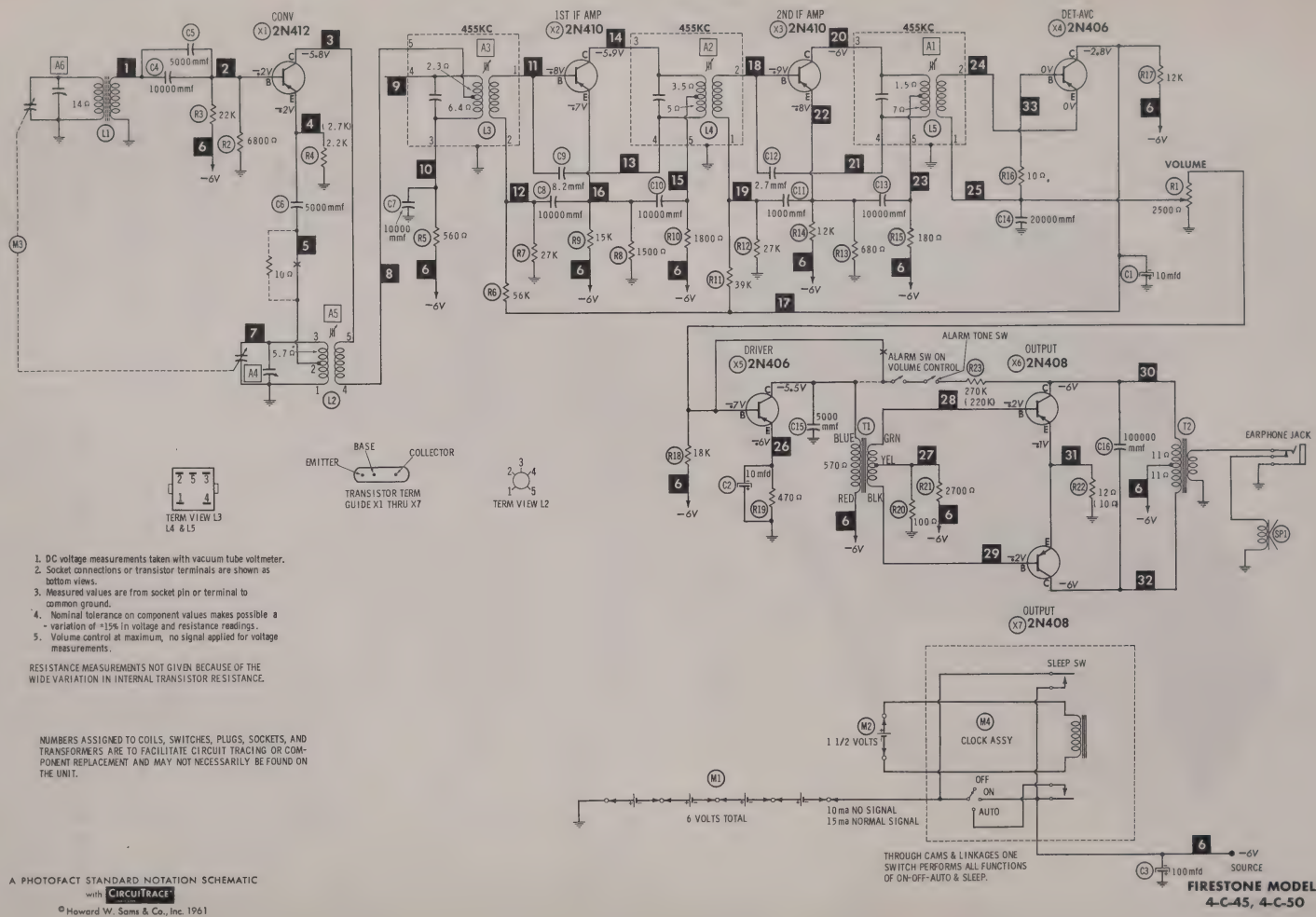
KF 531

SET 535 FOLDER 4



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a ± variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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FIRESTONE MODELS 4-C-45, 4-C-50

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N412	Converter	2N412	2N486	2N412	PNP
X2	2N410	1st IF Amplifier	2N410	2N483	2N410	PNP
X3	2N410	2nd IF Amplifier	2N410	2N483	2N410	PNP
X4	2N406	Det. - AVC	2N406	2N633	2N406	PNP
X5	2N406	Driver	2N406	2N633	2N406	PNP
X6	2N408	Output	2N408	2N633	2N408	PNP
X7	2N408	Output	2N408	2N633	2N408	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	10	581052	PTT-10010	NLW10-15	TT12X10	MLV10-10	TE-1114	
C2	10	10	581052	PTT-10010	NLW10-15	TT12X10	MLV10-10	TE-1114	
C3	100	10	581051	PTT-10100	NLW100-15	TT15X100	MLV100-10	TE-1119, 3	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C6	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	8, 2		NPO-SI 8, 2		C10V82C			10TCC-V82
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	2, 7		NPO-SI 3, 0		C10V3C			10TCC-V27
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C15	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C16	100000		C80V104AM	DDA-104	H-05P1	IDP-2-104	TA-010	TG-P10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FIRESTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	2500Ω	1/4	368056					Volume & Switch

RESISTORS

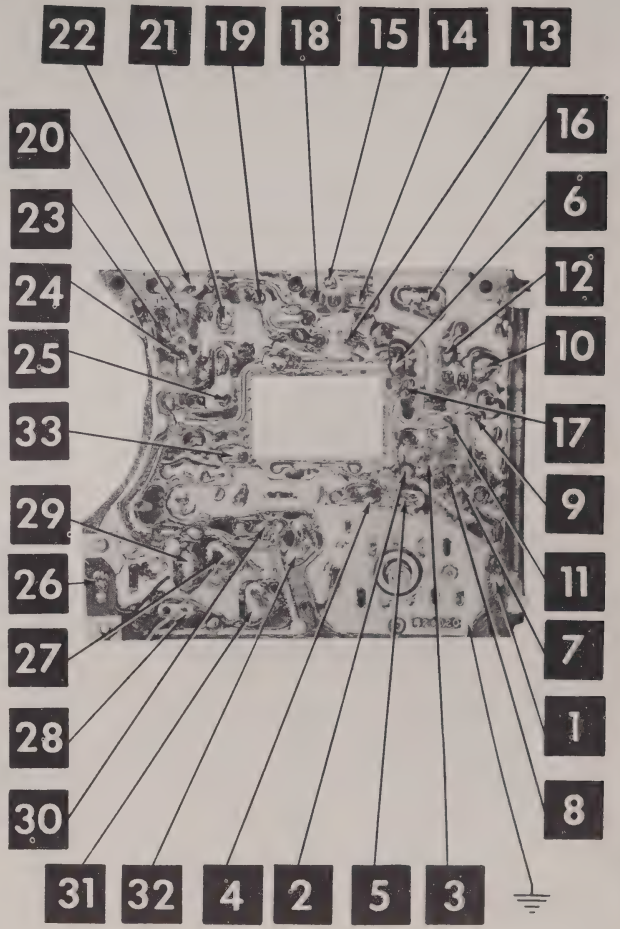
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	6800Ω				R13	680Ω			
R3	22K				R14	12K			
R4	2200Ω			(2700Ω) *	R15	180Ω			
R5	560Ω				R16	10Ω			
R6	56K				R17	12K			
R7	27K				R18	18K			
R8	1500Ω				R19	470Ω			
R9	15K				R20	100Ω			
R10	1000Ω				R21	2700Ω			
R11	39K				R22	12Ω			(10Ω) *
R12	27K				R23	270K			(220K) *†

* Alternate Value.
† Not used in Model 4-C-45.

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		FIRESTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	464032		2004		T528	
L2	Osc.	455084					
L3	1st IF	450026					
L4	2nd IF	450027					
L5	3rd IF	450028					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	FIRESTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.7	1	430580		TA-28	TR-4		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	FIRESTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	300Ω CT	3-4Ω	430579		TA-20	TR-101①		① Use 4Ω Tap

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	QUAM PART No.	
SP1	3"	PM	3-4Ω	409013		

BATTERIES

ITEM No.	VOLTAGE	FIRESTONE PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	①		930①		1015①		M-15R①	① 4 Required (radio)
M2	1.5V	②		930②		1015②		M-15R②	② 1 Required (Clock)

MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M3	Tuning Cap.	590055	2 Gang
M4	Clock Ass'y.	384025	Model 4-C-50
	Clock Ass'y.	394021	Model 4-C-45

CABINETS & CABINET PARTS

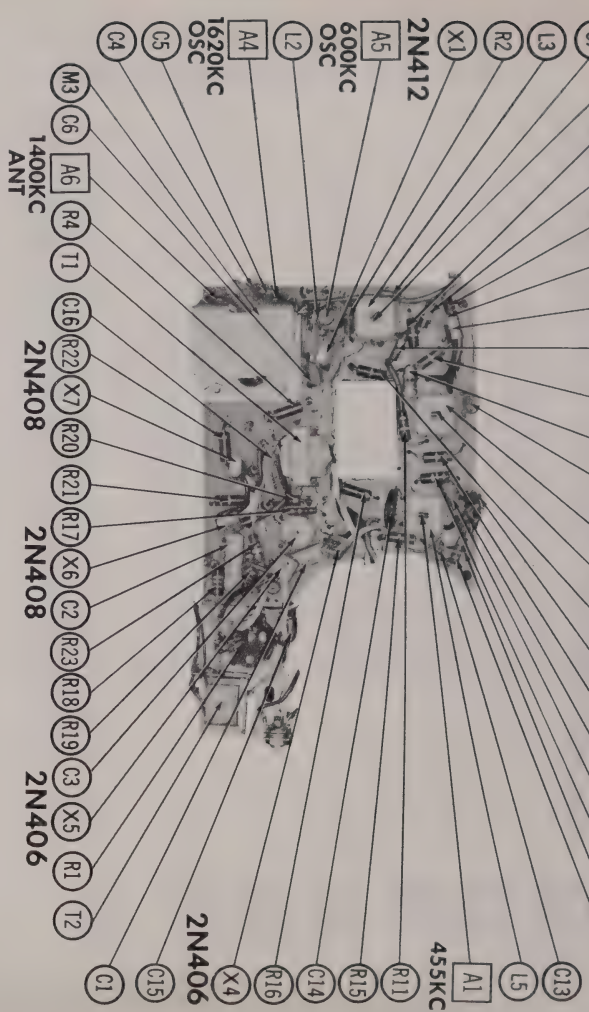
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Indicator	272324	Model 4-C-50
Knob	272323	Tuning, Model 4-C-50
Knob	272309	Tuning, Model 4-C-45
Knob	272310	Volume
Knob	272322	Clock, Model 4-C-50
Knob	272311	Clock, Model 4-C-45
Handle	761132	
Cabinet	250670	Turquoise, Model 4-C-50
Cabinet	250671	Ebony, Model 4-C-50
Cabinet	250431	Ebony, Model 4-C-45
Cabinet	250430	Turquoise, Model 4-C-45
Cabinet Cover	250440	Turquoise, Model 4-C-45
Cabinet Cover	250610	Turquoise, Model 4-C-50
Cabinet Cover	250611	Ebony, Model 4-C-50
Cabinet Cover	250441	Ebony, Model 4-C-45

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

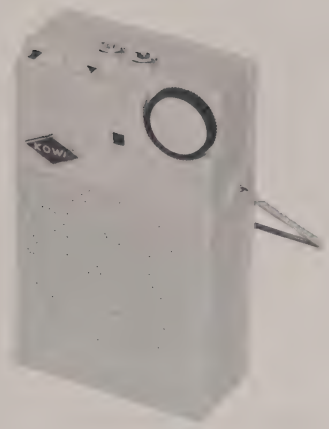
CHASSIS—TOP VIEW



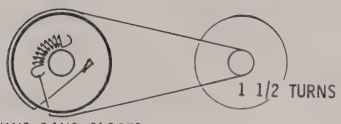
PHOTOFACT® Folder with CIRCUITRACE®

KOWA MODEL KT-63

KOWA MODEL
KT-63



DRIVE CORD STRINGING



TUNING GANG CLOSED

FRONT VIEW

KOWA MODEL
KT-63

TRADE NAME	Kowa Model KT-63
IMPORTER	Longwood Radio Distributors, Inc., 1261 Broadway, Suite 704, New York 1, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	5MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1600KC
	10MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5...GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A7.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5, A6	"
4.	"	1400KC	1400KC Signal	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

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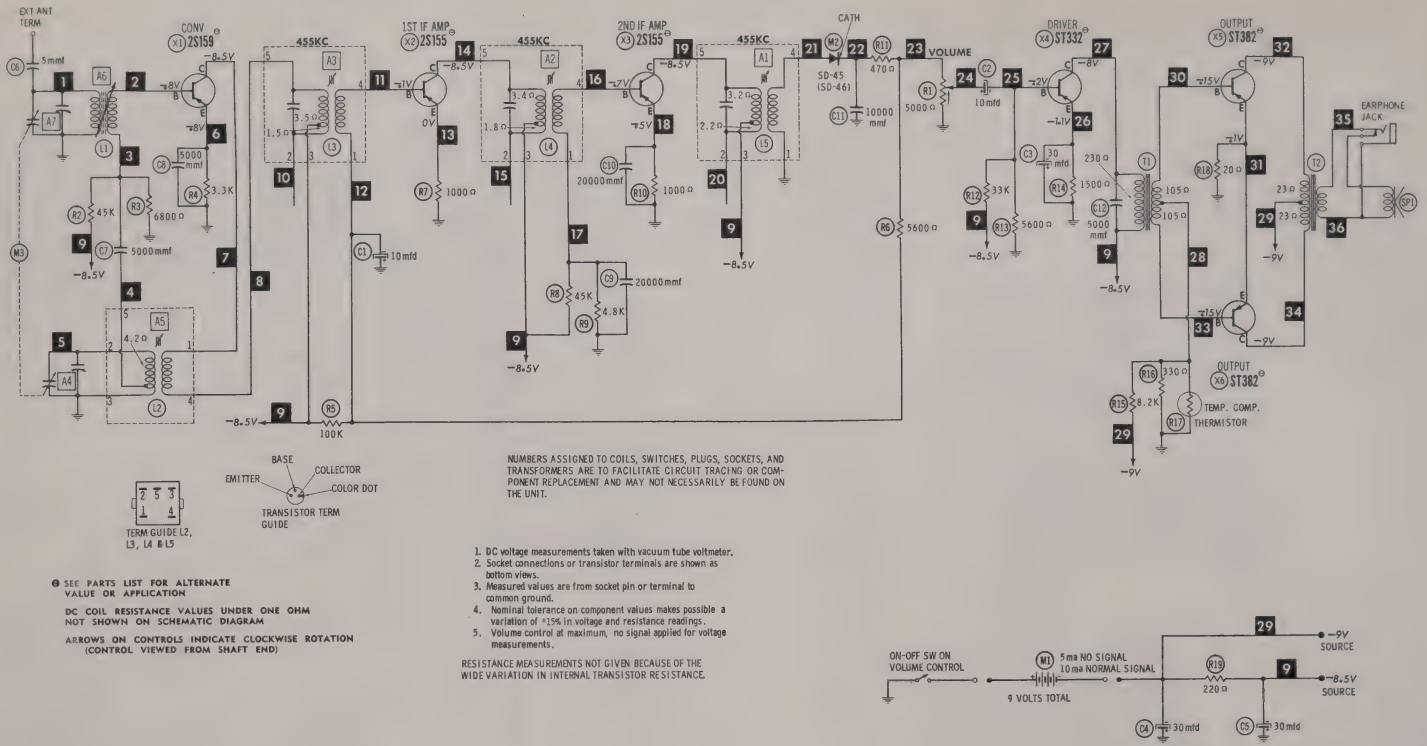
KF515

SET 535 FOLDER 5



❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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KOWA MODEL KT-63

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S159	Converter				PNP
	ST37D*	Converter				
X2	2S155	1st IF Amplifier				PNP
	ST28A*	1st IF Amplifier				
X3	2S155	2nd IF Amplifier				PNP
	ST28A*	2nd IF Amplifier				
X4	ST332	Driver	2N406			PNP
	ST303*	Driver				
X5	ST382	Output	2N408			PNP
	ST122*	Output				
	D32S*	Output				
X6	ST382	Output	2N408			PNP
	ST122*	Output				
	D32S*	Output				

* Alternate Type

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	KOWA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	5		PTT-3010	NLW10-6	TT3X10	MLV10-3	TE-1053	
C2	10	3		PTT-3010	NLW10-6	TT3X10	MLV10-3	TE-1053	
C3	30	3		PTT-3030	NLW30-6	TT6X30	MLV30-6	TE-1092	
C4	30	10		PTT-10030	NLW30-15	TT15X30	MLV35-15	TE-1158	
C5	30	10		PTT-10030	NLW30-15	TT15X30	MLV35-15	TE-1158	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C7	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C8	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C9	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C12	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	KOWA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/10						Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R2	45K			
R3	6800Ω			
R4	3300Ω			
R5	100K			
R6	5600Ω			
R7	1000Ω			
R8	45K			
R9	4800Ω			
R10	1000Ω			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R11	470Ω			
R12	33K			
R13	5600Ω			
R14	1500Ω			
R15	8200Ω			
R16	330Ω			
R17	Temp. Comp.			
R18	20Ω			
R19	220Ω			

PRINTED BOARD

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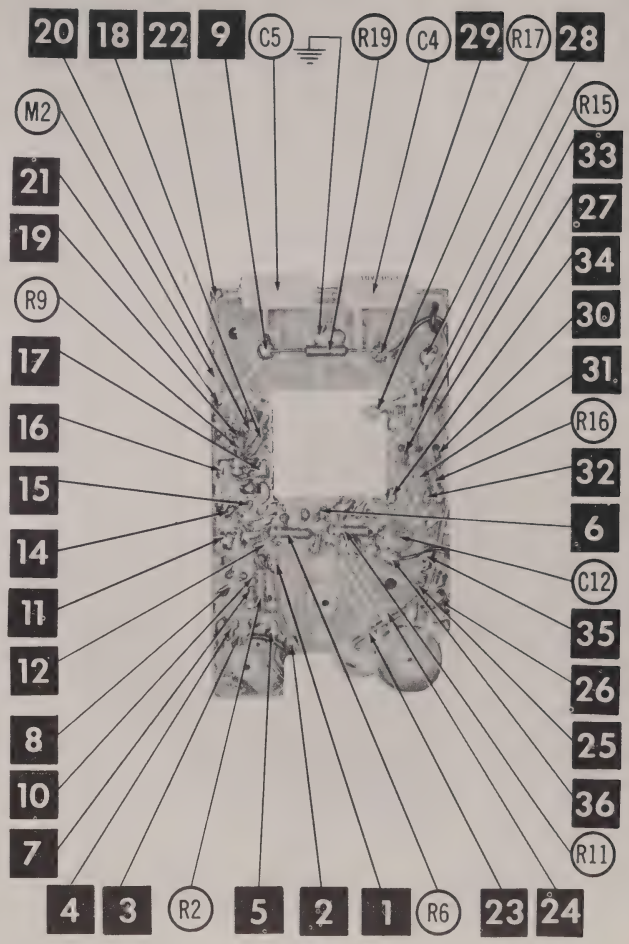


KOWA MODEL KT-63

FOLDER 5

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		KOWA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1 L2 L3 L4 L5	Loopstick Oscillator 1st IF 2nd IF 3rd IF						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	KOWA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.4	1	U-410			TR-40 ①		① Use Original Frame

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	KOWA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	450Ω CT	6-8Ω	U-411		TA-21			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	KOWA PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω		22A06Z8	

BATTERIES

ITEM No.	VOLTAGE	KOWA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		KOWA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	SD-45 *			1N60	1N60	Detector * Alternate Type SD-46

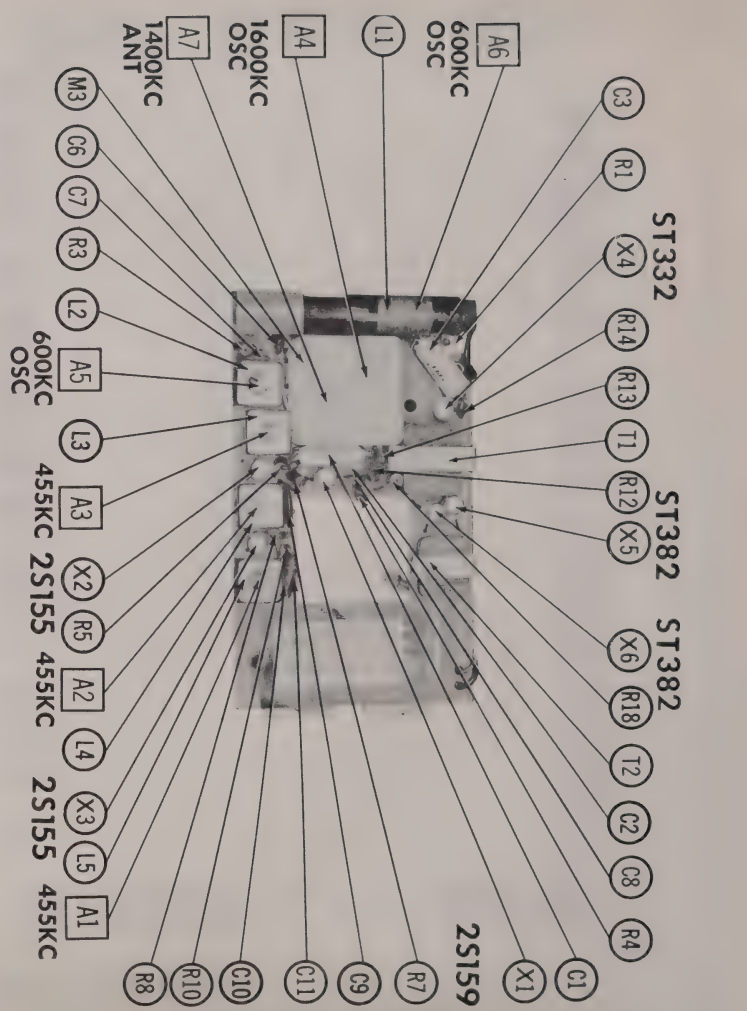
MISCELLANEOUS

ITEM No.	PART NAME	KOWA PART No.	NOTES
M3	Tuning Cap		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder

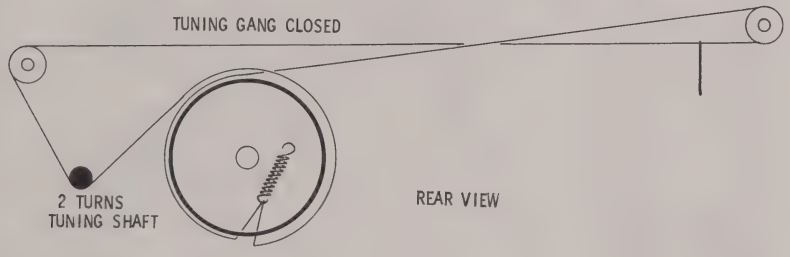
LEAK MODEL
Trough Line II

LEAK MODEL
Trough Line II

LEAK MODEL
Trough Line II

TRADE NAME	Leak Model Trough Line II
IMPORTER	British Industries, Corp., 50 Shore Road, Port Washington, N. Y.
TYPE SET	AC Operated 7 Tube FM Tuner
POWER SUPPLY	110/117/124 Volts AC, 50-60 Cycles RATING 37 Watts, .35 Amp. @117 Volts AC (On 117V tap)
TUNING RANGE — FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING



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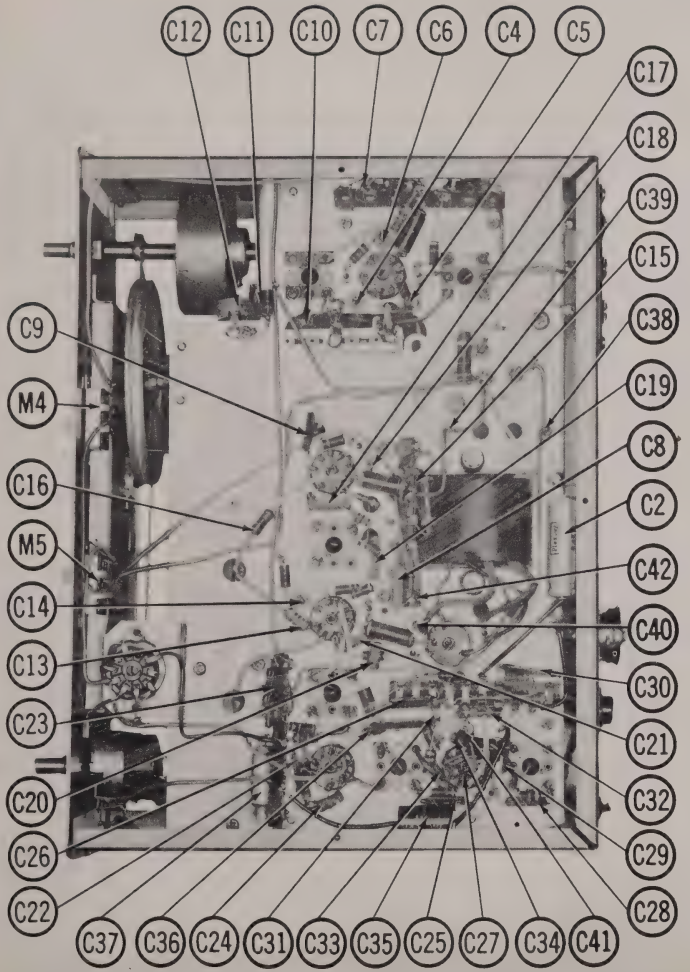
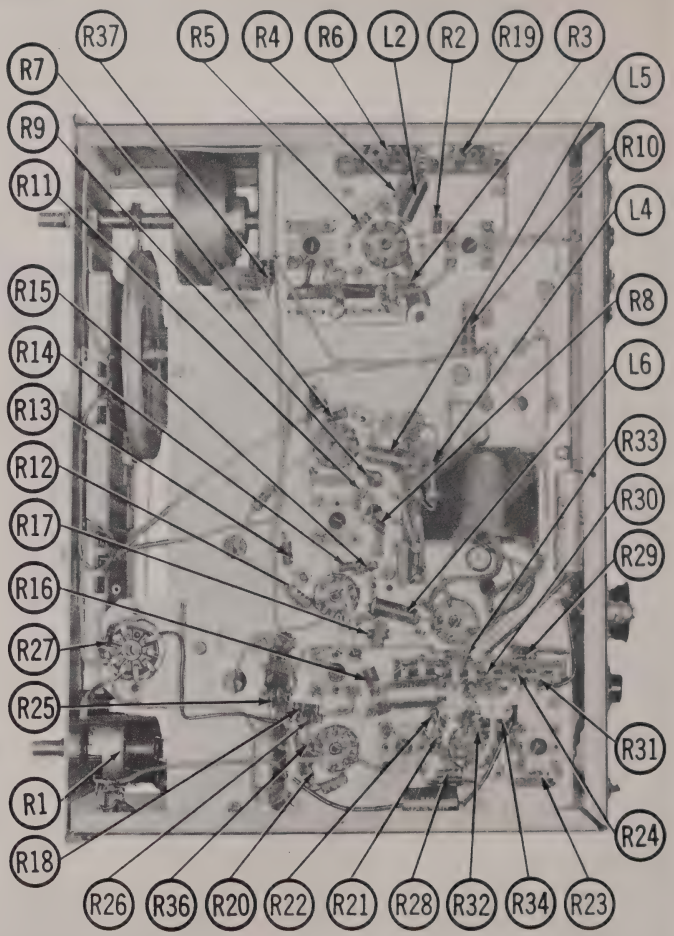
KJ509

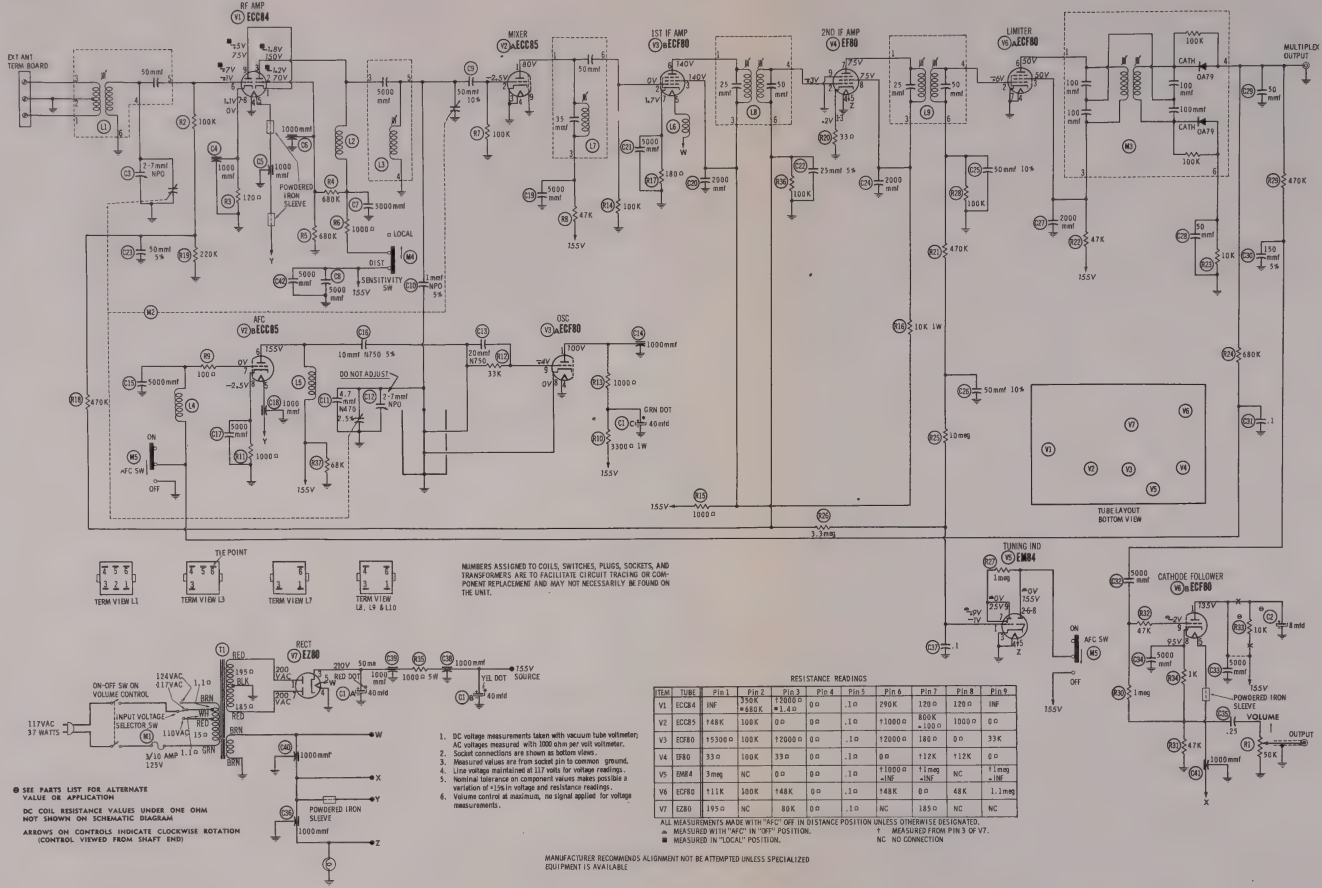
SET 535 FOLDER 6



CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW
-RESISTOR & INDUCTOR IDENT.



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC84	INF	350K ▪680K	↑2000Ω ▪1.4Ω	0Ω	.1Ω	290K	129Ω	120Ω	INF
V2	ECC85	↑68K	100K	0Ω	0Ω	.1Ω	↑1000Ω	800K ▪100Ω	1000Ω	0Ω
V3	ECF80	↑5300Ω	100K	↑2000Ω	0Ω	.1Ω	↑2000Ω	180Ω	0Ω	33K
V4	EF80	33Ω	100K	33Ω	0Ω	.1Ω	0Ω	↑12K	↑12K	0Ω
V5	EM84	3meg	NC	0Ω	0Ω	.1Ω	↑1000Ω ▪INF	↑1meg ▪INF	NC	↑1meg ▪INF
V6	ECF80	↑11K	100K	↑68K	0Ω	.1Ω	↑68K	0Ω	68K	1.1meg
V7	EZ80	195Ω	NC	80K	0Ω	.1Ω	NC	185Ω	NC	NC

ALL MEASUREMENTS MADE WITH "AFC" OFF IN DISTANCE POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED WITH "AFC" IN "OFF" POSITION.
■ MEASURED IN "LOCAL" POSITION.
↑ MEASURED FROM PIN 3 OF V7.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

MANUFACTURER RECOMMENDS ALIGNMENT NOT BE ATTEMPTED UNLESS SPECIALIZED EQUIPMENT IS AVAILABLE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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LEAK MODEL
Trough Line II

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

TUBES

◆ GENERAL ELECTRIC ◆			◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	ECC84	V5	Tuning Indicator	EM84
V2	Mixer-AFC	ECC85	V6	Limiter-Cath. Follower	ECF80
V3	Osc.-1st IF Amp.	ECF80	V7	Rectifier	EZ80
V4	2nd IF Amplifier	EF80			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA LEAK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	R 40	300		AFH4-02	B0260	FP327.89	TMD-2315	TVL-2575	
B	Y 40	300			BR4035		TD-40-350	TVA-1611	
C	G 40	300							
C2	8	350		PRS1610	BR835	TC61	TD-8-350	TVA-1603	Note 1

Note 1. Not used in some versions.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	2-7 NPO			822-EZ				
C4	1000		EF-001	MFT-1000		CCF-102	CT280A	
C5	1000		EF-001	MFT-1000		CCF-102	CT280A	
C6	1000		EF-001	MFT-1000		CCF-102	CT280A	
C7	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C8	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C9	50 10%		1469-00005	TCZ-50	22R5Q5	CM-19B-500K	MCB225	MS-45
C10	1 NPO 5%		NPO-SI 1.0	TCZ-1		*	CNO-510	10TCC-V10
C11	4.7 N470 2.5%							

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C12	2-7 NPO			822-EZ				
C13	20 N750		N750-SI 20	TCN-20	C10Q2U	CCTN-200	CN7-420	10TCU-Q20
C14	1000		EF-001	MFT-1000		CCF-102	CT280A	"
C15	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C16	10 N750 5%		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C17	5000		SI 5000	D6-502	BYA10D5	CCD-5000	B-250	5HK-D50
C18	1000		EF-001	MFT-1000		CCF-102	CT280A	
C19	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	2000		SI 2000	D6-202	BYA10D2	CCD-202	B-220	5HK-D20
C21	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C22	25 5%		1469-000025	TCZ-25	22R5Q25	CM-19B-250J	MCE220	MS-425
C23	50 5%		1469-00005	TCZ-50	22R5Q5	CM-19B-500J	MCE225	MS-45
C24	2000		SI 2000	D6-202	BYA10D2	CCD-202	B-220	5HK-D20
C25	50 10%		1469-00005	TCZ-50	22R5Q5	CM-19B-500K	MCB225	MS-45
C26	50 10%		1469-00005	TCZ-50	22R5Q5	CM-19B-500K	MCB225	MS-45
C27	2000		SI 2000	D6-202	BYA10D2	CCD-202	B-220	5HK-D20
C28	50 10%		1469-00005	TCZ-50	22R5Q5	CM-19B-500K	MCB225	MS-45
C29	50 10%		1469-00005	TCZ-50	22R5Q5	CM-19B-500K	MCB225	MS-45
C30	150 5%		1469-00015	TCZ-150	22R5T15	CM-19B-151J	MCE236	MS-315
C31	.1 150V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C32	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C33	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C34	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C35	.25 250V		P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C36	1000		EF-001	MFT-1000		CCF-102	CT280A	
C37	.1 150V		P288N-1	DF-104	CUB2P1	ZDP-3-104	GEM-201	2TM-P10
C38	1000		EF-001	MFT-1000		CCF-102	CT280A	
C39	1000		EF-001	MFT-1000		CCF-102	CT280A	
C40	1000		EF-001	MFT-1000		CCF-102	CT280A	
C41	1000		EF-001	MFT-1000		CCF-102	CT280A	
C42	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA LEAK PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	50K	½		B-32	A47-500K-Z	B13-123	U33	Volume
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
C	Switch			KR-2	SWE-20	76-2	US-27	Power Off-On

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	100K			
R3	120Ω			
R4	680K			
R5	680K			
R6	1000Ω			
R7	100K			
R8	47K			
R9	100Ω			
R10	3300Ω 1W			
R11	1000Ω			
R12	33K			
R13	1000Ω			
R14	100K			
R15	1000Ω			
R16	10K 1W			
R17	180Ω			
R18	470K			
R19	220K			
R20	33Ω			
R21	470K			
R22	47K			
R23	10K			
R24	680K			
R25	10meg			
R26	3.3meg			
R27	1meg			
R28	100K			
R29	470K			
R30	1meg			
R31	47K			
R32	47K			
R33	10K			Note 1
R34	1000Ω			
R35	1000Ω 5W	PW5-1000	5W-SQ-1000	
R36	100K			
R37	68K			

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		LEAK PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.						
L2	RF Choke (3uh)		SW-630	4606	RTC-8517	T816	
L3	RF						
L4	RF Choke (3uh)		SW-630	4606	RTC-8517	T816	
L5	RF Choke (3uh)		SW-630	4606	RTC-8517	T816	
L6	Fil. Choke (3uh)		SW-630	4606	RTC-8517	T816	
L7	1st IF						
L8	2nd IF		FM-256	1463-PC	RTC-9046	T654	
L9	3rd IF		FM-256	1463-PC	RTC-9046	T654	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	LEAK PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	124V Tap @ 117V @ .35A Tap @ 110V	400VCT @ .050A DC	6.3V @ 3A						

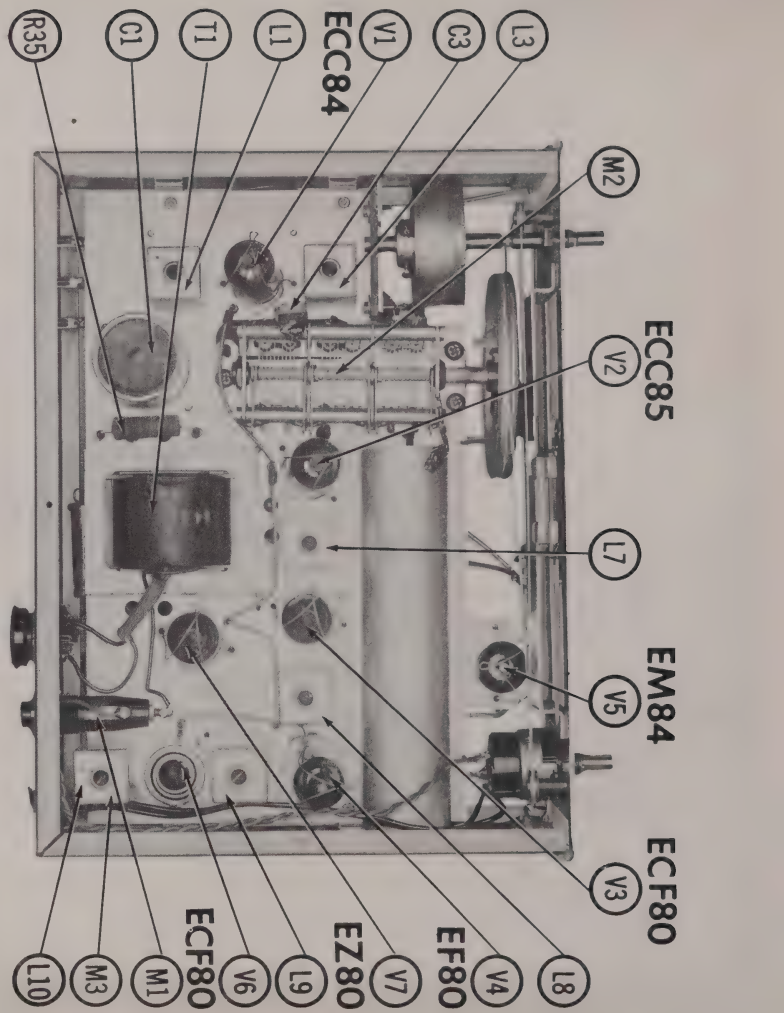
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			LEAK PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		3/10A 125V			312.500 (3/10A 125V)	342001	AGC 1/2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	LEAK PART No.	NOTES
M2	Tuning Cap		3 Gang
M3	Detector Ass'y.		
M4	Switch		Sensitivity (SPDT Slide Type)
M5	Switch		AFC (SPDT Slide Type)

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

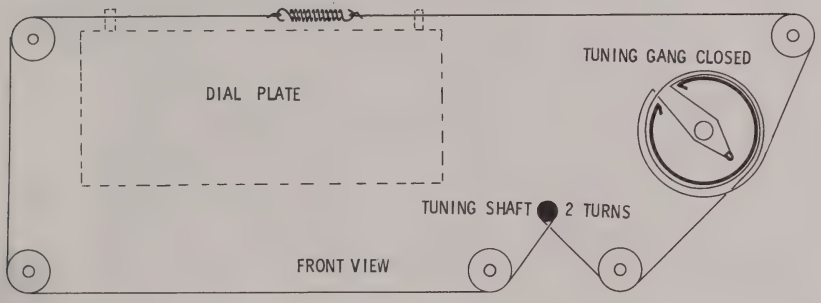
MADISON FIELDING
MODEL SERIES 630

MADISON FIELDING
MODEL SERIES 630

MADISON FIELDING
MODEL SERIES 630

TRADE NAME	Madison Fielding Model Series 630
MANUFACTURER	Crosby Electronics, Inc., Subsidiary of Crosby-Teletronics Corp., 135 Eileen Way, Syosset, L. I, N. Y.
TYPE SET	AC Operated 7 Tube FM Tuner
POWER SUPPLY	105 — 125 Volts AC, 60 Cycles RATING 25 Watts, .25 Amp. @117 Volts AC
TUNING RANGE—FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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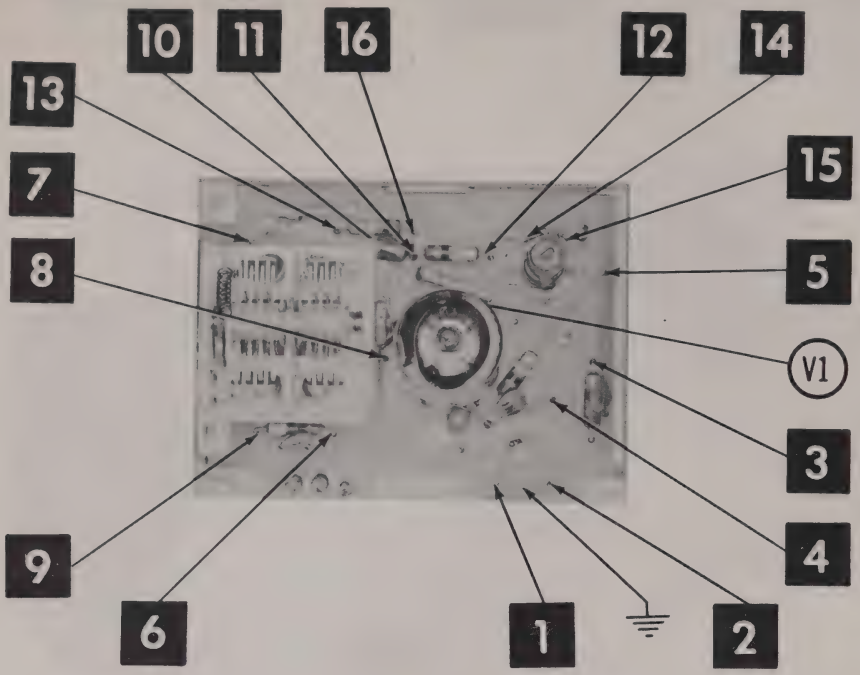

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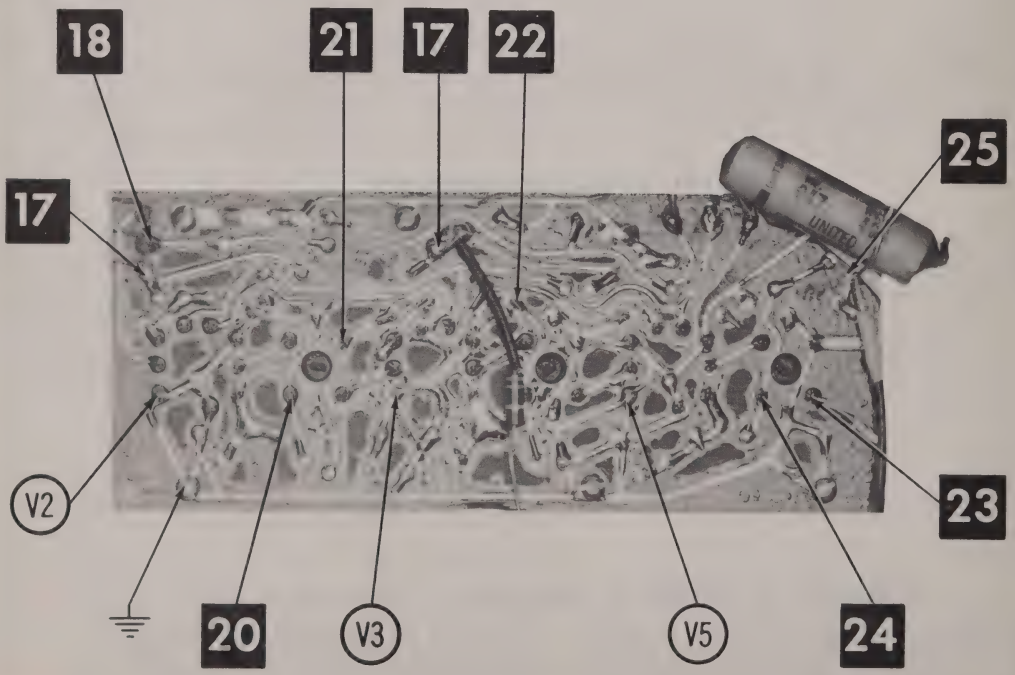
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



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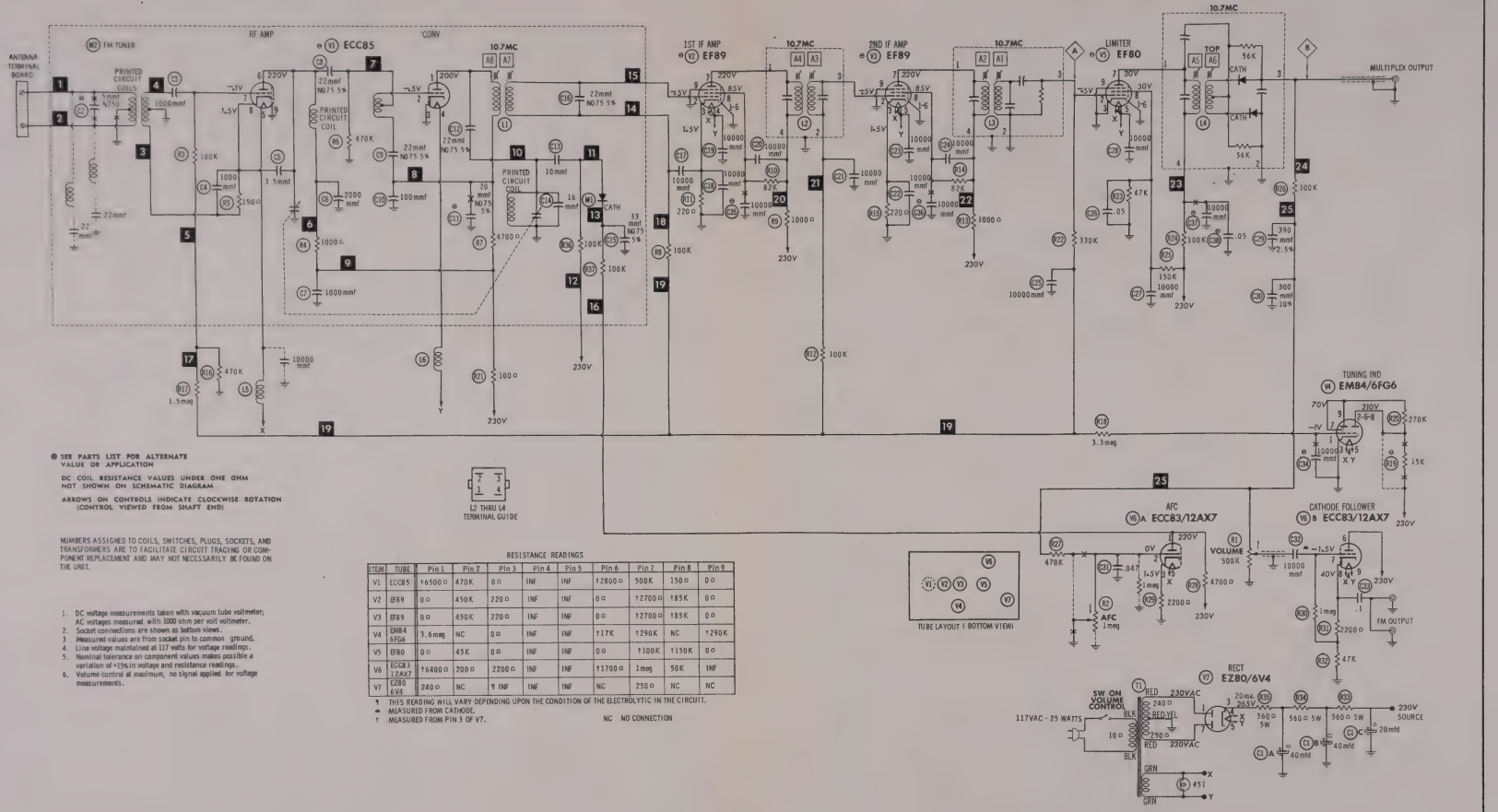

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	†6500Ω	470K	0Ω	INF	INF	†2800Ω	500K	150Ω	0Ω
V2	EF89	0Ω	450K	220Ω	INF	INF	0Ω	†2700Ω	†85K	0Ω
V3	EF89	0Ω	450K	220Ω	INF	INF	0Ω	†2700Ω	†85K	0Ω
V4	EM84 6FG6	3.6meg	NC	0Ω	INF	INF	†17K	†290K	NC	†290K
V5	EF80	0Ω	45K	0Ω	INF	INF	0Ω	†100K	†150K	0Ω
V6	ECC83 12AX7	†6400Ω	200Ω	2200Ω	INF	INF	†1700Ω	1meg	50K	INF
V7	EZ80 6V4	240Ω	NC	¶ INF	INF	INF	NC	250Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
▲ MEASURED FROM CATHODE.
† MEASURED FROM PIN 3 OF V7.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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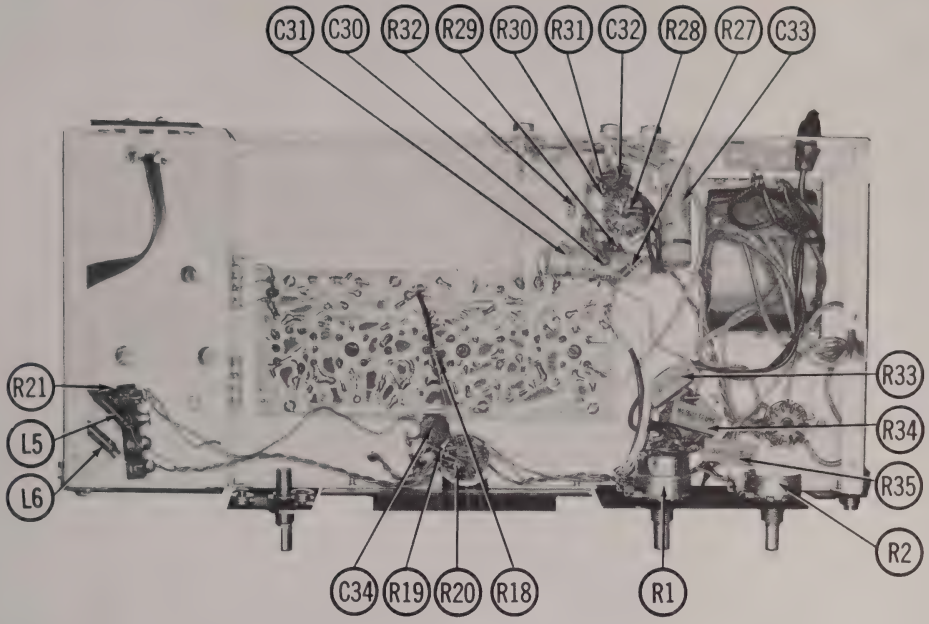
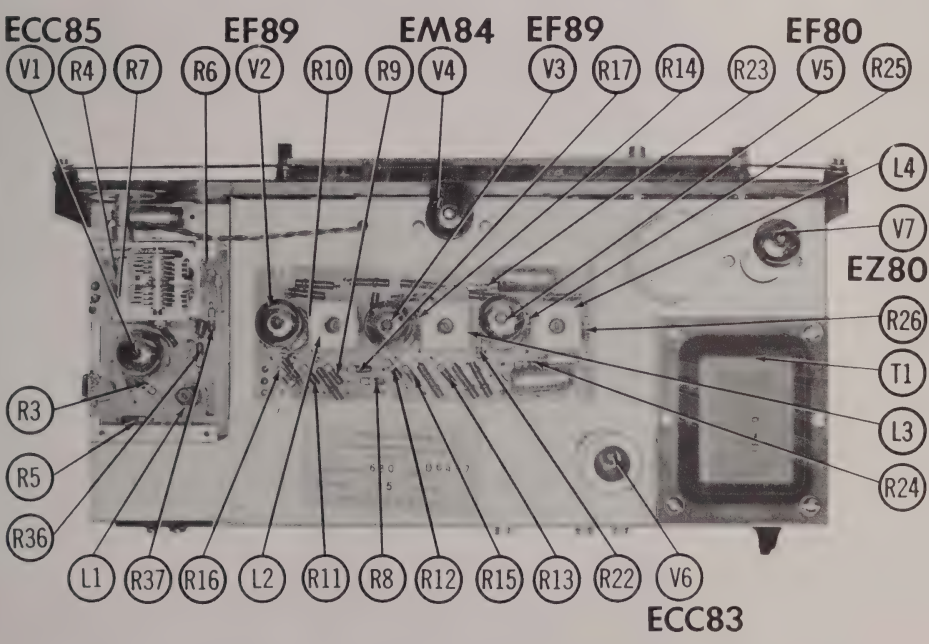
MADISON FIELDING MODEL SERIES 630



CHASSIS-BOTTOM VIEW



CHASSIS TOP VIEW-RESISTOR, INDUCTOR & TUBE IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1 thru A8..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .001mfd to pin 2 (grid) of V2. Low side to chassis.	10.7MC (Unmod.)	Point of non-interference.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	"	"	DC probe to point Ⓑ. Common to chassis.	A5, A6	Detune A6 and adjust A5 for maximum deflection. Adjust A6 for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to pin 2 (grid) of V2. Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference.	Vert. amp. to point Ⓐ. Low side to chassis.	A1, A2, A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A5, A6	Adjust A5 for maximum amplitude of response on scope. Adjust A6 to place 10.7MC marker in center of crossover lines as in Fig. 2. Retouch A5 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	Across antenna terminals with 120Ω in each lead.	100MC (Unmod.)	100MC	DC probe to point Ⓐ. Common to chassis.	A7, A8	Adjust for maximum deflection.

FIG. 1

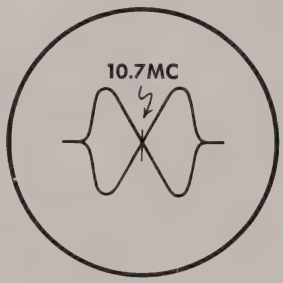


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp. -Conv.	ECC85 (6AQ8) *	V5	Limiter	EF80 (6BX6) *
V2	1st IF Amplifier	EF89 (6DA6) *	V6	AFC - Cath. Follower	ECC83/12AX7
V3	2nd IF Amplifier	EF89 (6DA6) *	V7	Rectifier	EZ80/6V4
V4	Tuning Indicator	EM84/6FG6			

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Madison Fielding PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	300	CE-404023	AFH4-02	B0440	FP327.89	TMT-3337	TVL-3583	
B	■40	300			BR4035				
C	▲20	300							

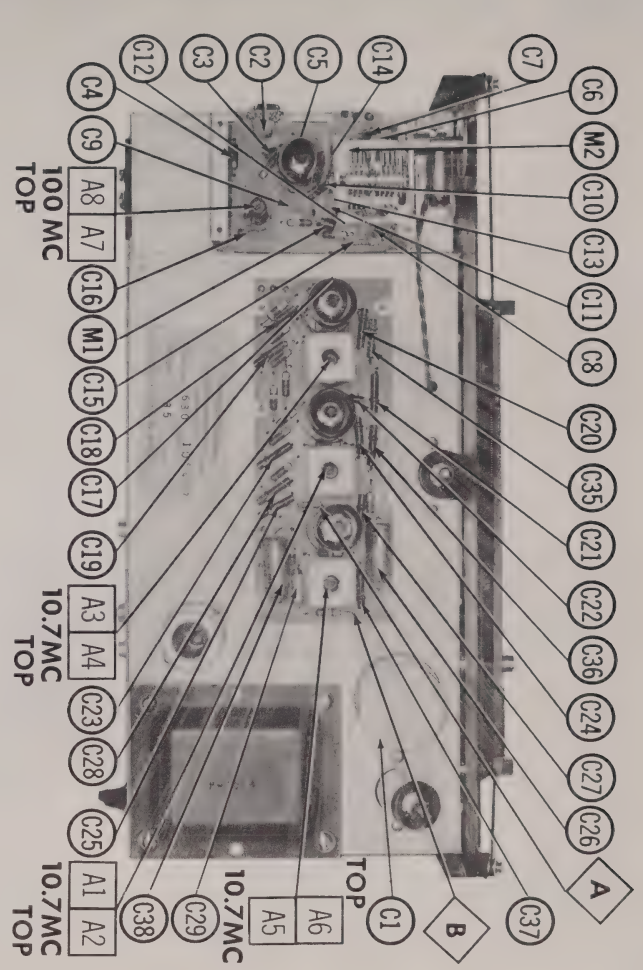
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	5 N750	Note 1	N750-D1 5.0	DTZ-4R7	C10V5C	CCTO-050	CN7-550	10TCU-V50
C3	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C4	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C5	3.5		NPO-D1 3.3	5TZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C6	2000		SI 2000	D6-202	BYA10D2	CCD-202	B-220	5HK-D20
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	22 N075 5%					*		
C9	22 N075 5%					*		
C10	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C11	20 N075 5%	Note 1				*		
C12	22 N075 5%					*		
C13	10		SI 10	D6-100	L10Q1	CCD-100	GP410	10TS-Q10
C14	16		SI 18	D6-180	L10Q18	CCD-180	GP418	10TS-Q18
C15	33 N075 5%					*		
C16	22 N075 5%	(10) †				*		
C17	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C27	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	390 2.5%					CM-15E-391G		
C30	300 10%			D6-301	L10T3	CCD-301	MCB241	MS-333
C31	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C34	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	10000	Note 1	SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	10000	Note 1	SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	10000	Note 1	SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.05 200V	Note 1	P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50

Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Alternate Value.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Madison Fielding PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	½	RV-5058	B-60-S	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R2A	1meg	½	RV-5057	B-69	A47-1meg-6	Q11-137	U54	AFC
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	100K				R21	100Ω			
R4	1000Ω				R22	330K			
R5	150Ω				R23	47K			
R6	470K				R24	100K			
R7	4700Ω				R25	150K			
R8	100K				R26	100K			
R9	1000Ω				R27	470K			
R10	82K				R28	4700Ω			
R11	220Ω				R29	2200Ω			
R12	100K				R30	1meg			
R13	1000Ω				R31	2200Ω			
R14	82K				R32	47K			
R15	220Ω				R33	560Ω 5W	PW5-560	5W-SQ-560	
R16	470K				R34	560Ω 5W	PW5-560	5W-SQ-560	
R17	1.5meg				R35	560Ω 5W	PW5-560	5W-SQ-560	
R18	3.3meg				R36	100K			(470K) †
R19	15K			Note 1	R37	100K			
R20	270K								

Note 1. Not used in some versions.
† Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Madison Fielding PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	1st IF	HT-1					
L2	2nd IF	HT-4					
L3	3rd IF	HT-14					
L4	Discriminator	HT-27					
L5	Fil. Choke (luh)	LC-1001	BC-561	4602	RTC-8515	T855	
L6	Fil. Choke (luh)	LC-1001	BC-561	4602	RTC-8515	T855	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Madison Fielding PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .25A	460VCT @ .020A DC	6.3V @ 2.8A	TP-1014		PM8418			

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		Madison Fielding PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M1						AFC Diode (Part of tuner)

MISCELLANEOUS

ITEM No.	PART NAME	Madison Fielding PART No.	NOTES
M2	FM Tuner		

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

**MAGNAVOX MODELS
M600, K600, L600**

MAGNAVOX MODELS
M600, K600, L600

MAGNAVOX MODELS
M600, K600, L600

GENERAL INFORMATION

Magnavox Models M600, K600 and L600 Stereo record changers are designed to play a stack of records in automatic sequence and shut off after playing the last record.

The change mechanism used is of the velocity-trip type. The sound output is muted during the change cycle.

Record separation is accomplished by movement of a finger in the center spindle that directly separates records having a 1/4" center hole. Records with a 1 1/2" center hole may be played by using the 45 rpm spindle or by inserting an adaptor in the record.

These changers have four speeds: 16 2/3, 33 1/3, 45, and 78 rpm.

Connect changer to an outlet supplying 117 volts, 60 cycle AC only.

Manufactured By:

The Magnavox Company
Fort Wayne, Indiana

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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CQ466

SET 535 FOLDER 8

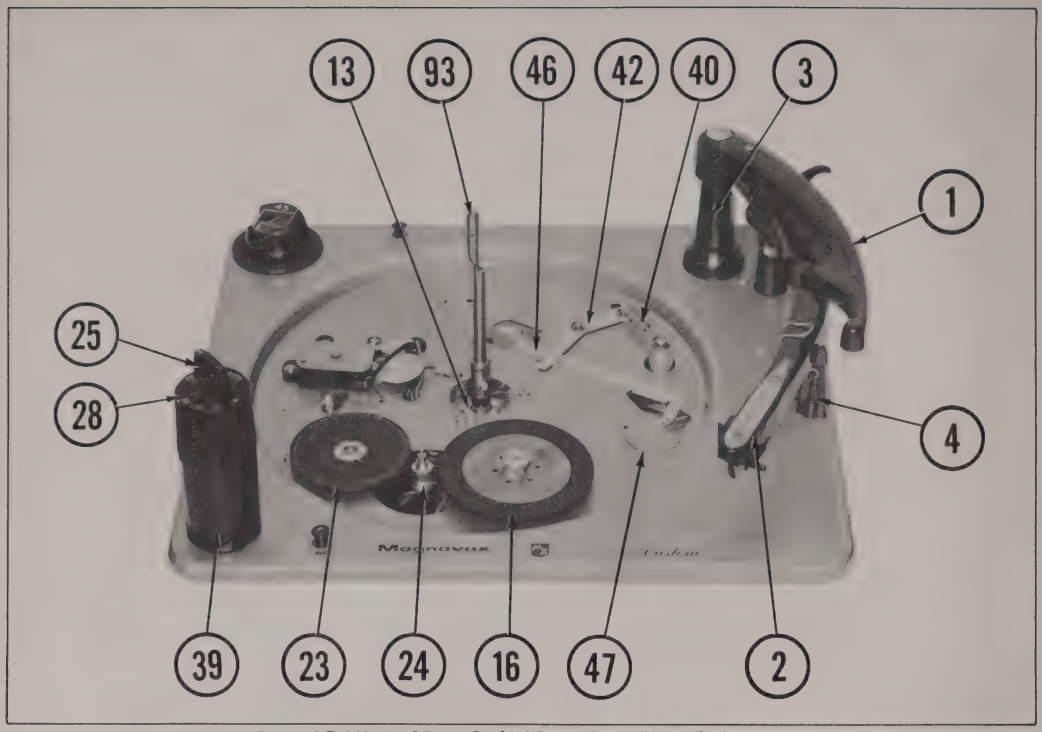


FIG. 1 TOP VIEW OF MECHANISM WITH TURNTABLE REMOVED

CONTROLS

Two controls are provided on the baseplate at the left-front corner in a dual coaxial knob.

"Off-On-Auto" is the center control. When this control is turned clockwise to the "On-Auto" position and released, the motor is energized and the mechanism starts into cycle. After the last record has been played, the mechanism will shut off automatically.

The "Speed Selector" is the outer knob. It can be set for 16 2/3, 33 1/3, 45, or 78 rpm records.

OPERATING INSTRUCTIONS

Loading

1. Swing the balance arm (1) to the right.
2. Load the records onto the spindle.
3. Place record balance arm (1) over the records.

Automatic Operation

1. Set the Speed Selector to the appropriate speed.
2. Turn the "Off-On-Auto" control to the "On-Auto" position and release. The records will automatically play and the mechanism will shut off after the last record is played.

Manual Operation

1. Turn speed selector to the correct record speed.
2. Turn stylus to "LP-S" for 16 2/3, 33 1/3, and 45 rpm records and to 78 for 78 rpm records.
3. Place a record onto the turntable.
4. Move the "Off-On-Auto" control to the "On" position.
5. Place the tone arm (2) on the record.
6. After the record has finished playing, the tone arm (2) will return to its rest position and the changer will automatically shut off.

Tone Arm Set Down

Automatic positioning for all record sizes is accomplished when the tone arm (2) touches the rim of the next record to be dropped and then sets down on a diameter approximately 1/4" small. This will place the stylus contact approximately 1/16" from the edge of the record. This adjustment is located in the baseplate just forward of the tone arm pivot. To move the tone arm towards the center of the record, turn the adjustment clockwise. To move the tone arm towards the edge of the record, turn the adjustment counterclockwise. The adjustment should be turned a small amount and the setdown of the tone arm checked, since one-half turn of the adjustment screw covers the entire adjustment range.

Tone Arm Height

The two adjustments which set the vertical movement of the tone arm are located in the tone arm (A) and on the baseplate (B).

The adjustment in the tone arm (A) is made first. Manually lower the tone arm adjacent to the rim of the turntable. Turn the adjustment screw until the stylus clears the baseplate and still has enough travel to play a single record on the turntable.

The second adjustment (B) should be set so that when the tone arm is lifted out over its rest during the change cycle, it should clear the underside of the next record to be dropped by 1/4". The adjustment screw (B) is turned counterclockwise to raise the arm and clockwise to lower it.

Record Dropping

The record dropping adjustment is set with the sub-plate assembly removed from the changer. Move lever (122) and rotate cam in a clockwise direction until the mechanism is out of the change cycle. Loosen the holding screws and move pawl adjustment plate (131) until the bottom ends of the record release pawls are just contacted. Re-tighten screws to secure plate. Rotate the cam clockwise until the record selector pawl reaches its maximum height above the record spindle shelf. Turn the record-dropping locking nut (128) until the record-dropping pawl is 1/16" above the record spindle shelf. Move cam further until the pawl is located at its maximum lateral travel and protrudes just beyond the outer edge of the record spindle shelf. The pawl stop screw (130) is then adjusted toward the pawl ends until there is approximately .003" clearance between them. The adjustment is completed by tightening the lock nut and repeating releasing action.

Stylus Pressure

To check the stylus pressure, use a suitable gram scale and follow the stylus manufacturer's instructions. The pressure adjustment is located either in the top rear of the tone arm or beneath the tone arm (accessible from the front under the arm).

Balance Arm

The balance arm is adjusted so that records are held horizontal on the spindle. To adjust, turn the adjustment screw (located next to the balance arm shaft) for correct position of records. Check the adjustment by lifting the balance arm from the records and replacing it. The adjustment may have to be repeated several times to obtain correct positioning. After adjustment is made, check the tone arm height adjustment.

Idler Wheel Height

The idler wheel is adjusted so that it rides in the center of the proper step on the motor pulley. The screw is located on the baseplate under the idler wheel. Turn the screw clockwise to raise the idler wheel and counterclockwise to lower it.

CHANGE CYCLE

It is recommended that the change cycle operation be observed by rotating the "Off-On-Auto" knob to the "Auto" position and turning the cam gear by hand. The action described below can then be readily followed and the function of each part more easily understood. This changer is provided with what is known as a "Velocity Trip" mechanism. The change cycle is started by the faster inward motion of the tone arm when the needle enters the lead-out groove at the end of a record.

The tone arm assembly and the pickup positioning finger pushes striker feed lever (101). The striker arm (111), by the friction of its own weight resting on the curved end of the striker feed lever (101), is fed inwardly toward the turntable hub.

While a record is playing, the slight movement of the striker arm (111) is not sufficient to trip the mechanism because on each revolution of the turntable, the wiping action by the turntable hub projection moves striker arm (111) back far enough to clear the hub projection.

When the needle enters the leadout grooves of a record, causing the tone arm to advance rapidly toward the spindle, striker arm (111) is moved fast enough and far enough to definitely engage the turntable hub projection. As the hub projection engages with the striker arm (111), the striker arm is pushed away from the turntable hub (toward the tone arm) far enough to cause the intermediate gear assembly (119) to pivot, releasing the locking pin from the tab on the main cam gear assembly (99). This causes two things to happen: (1) it unlocks the cam gear from its out-of-cycle position, and (2) it permits drive wheel (16) and its associated gear train to be pulled into contact with the motor pulley (24), thus, being in position to drive the mechanism through the change cycle. During the change cycle, the main cam gear assembly makes one complete rotation in a clockwise direction.

As main cam gear (99) starts to rotate, cam gear locating roller (106) due to the elevations on the cam gear (99) where it rides causes the tone arm lift lever (108) to pivot. This pivoting causes the pickup lift spindle (61) to raise which in turn raises the pick-

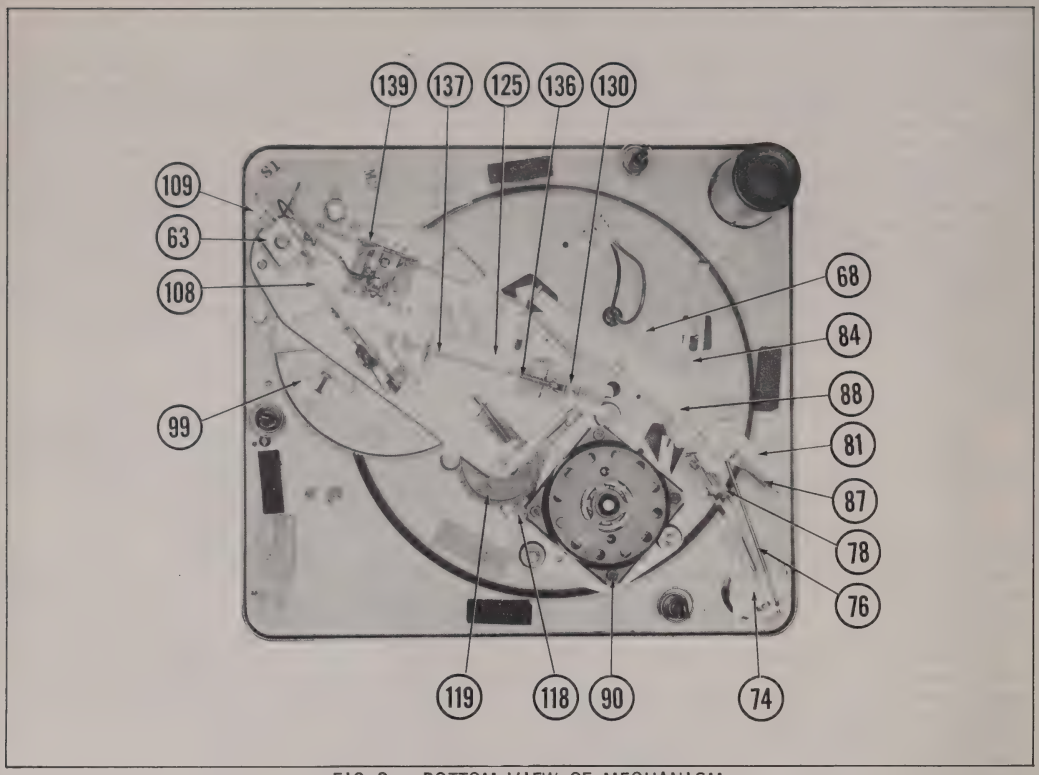


FIG.2 BOTTOM VIEW OF MECHANISM

up arm and controls the vertical travel of the arm. Also, as the tone arm lift lever (108) pivots, the muting switch (139) contacts are closed due to the muting switch lever (138) being released. This shorts out the pickup cartridge, thus preventing any undesirable noises from coming through the amplifier while the mechanism is in cycle.

Simultaneously, as the main cam gear assembly (99) starts to rotate, the cam following-pin is forced to the outside cam groove. The tone arm is also caused to be carried to its outermost point of lateral travel.

The following-pin moves inward through the predetermined test track. This test track is held constant by the lever on the cam. The lever is reset as it wipes against the eccentric cam as the main cam rotates. The tone arm is carried inwardly and touches the edge of the first record on the spindle. This happens as the following-pin moves through the test track. The tone arm can move no farther inward as the following-pin moves on through the test track; therefore, the friction clutch slips allowing the following-pin to move on. As the following-pin moves out of the test track, it is forced to the outside edge of the cam. The following-pin is now forced out of the sloped groove at a point determined by the size of the record when felt by the tone arm, and moves across the smooth surface traveling down the positioning groove.

As the main cam gear is still rotating, the record-dropping slide assembly (125), being contacted by the push-off roller, is forced toward the record spindle. This causes the record dropping pawl assembly (95) to be moved upward and laterally, causing the bottom record to be pushed off the spindle shelf. The record drops onto the turntable and the tone arm sets down on the record lead-in groove.

The final portion of cam gear rotation causes the tab on the bottom of the cam gear to engage the locking pin on the intermediate gear assembly (119). This causes the drive wheel (16) to be pulled away from the motor pulley. The main cam gear and intermediate gear assembly are held in the out-of-cycle position by the roller on the cam riding into the auto/off cocking lever (48).

After the last record has played, the change cycle is started and the tone arm is again carried in towards the center of the turntable. The arm does not contact a record so the following-pin leaves the test track and moves through the sloped groove to the outside cam groove. This action swings the tone arm to its rest position. The following-pin locks the shut-off lever on the cam placing the tab on the shut-off lever in its outer position.

Just before the following-pin locks the shut-off lever, the auto/off cocking lever (48) is caused to pivot by the roller on the cam. This in turn causes

the auto/off auxiliary lever (42) to move sufficiently to remove the pressure from the auto/off lever (46). This lever then moves away from the notch in the baseplate of the changer. It then moves ahead of the control bar assembly (81). The auto/off auxiliary lever being released, drives the auto/off lever (46) against the bent end of the control bar assembly (81).

The notched portion of the control bar assembly moves away from the grooved stud allowing both the control bar assembly and auto/off operating lever (46) to return to the "Off" position. This causes the idler wheel to retract from the motor pulley (24), turns off the motor circuit, and returns the On-Off control knob to the "Off" position.

Maintenance of Motor and Turntable Drive

No lubrication of the motor is normally required as it is fitted with self-oiling bearings. The only maintenance necessary consists of occasional removal of the turntable to clean its inner rim and the driving surfaces of the idler wheel (23), the drive wheel (16), and the motor pulley (24). Clean these parts with a clean, solvent-moistened cloth. The thrust washers and ball race located under the turntable should also be examined, and if necessary, cleaned with a petroleum solvent and lubricated with a small amount of soft, non-hardening grease.

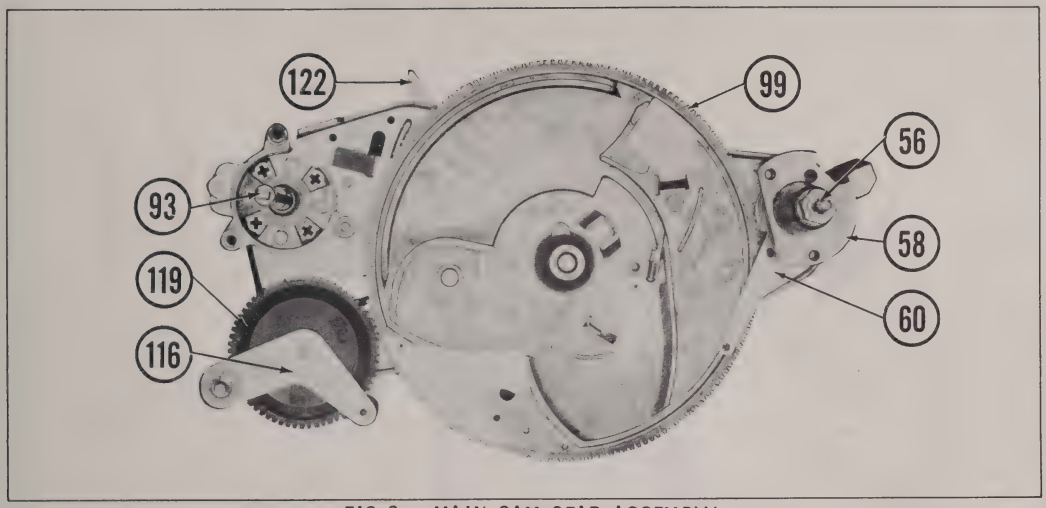


FIG.3 MAIN CAM GEAR ASSEMBLY

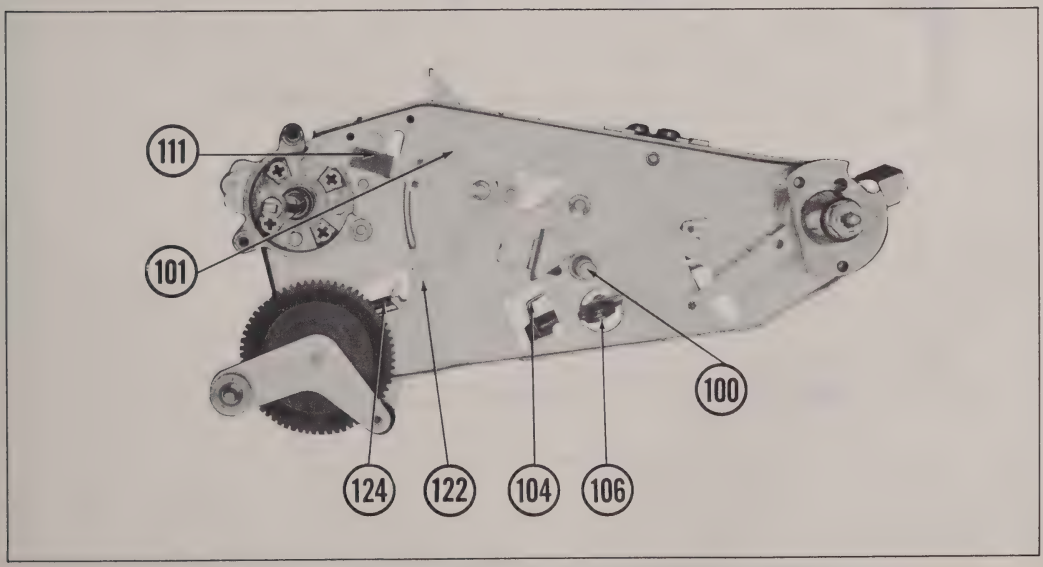
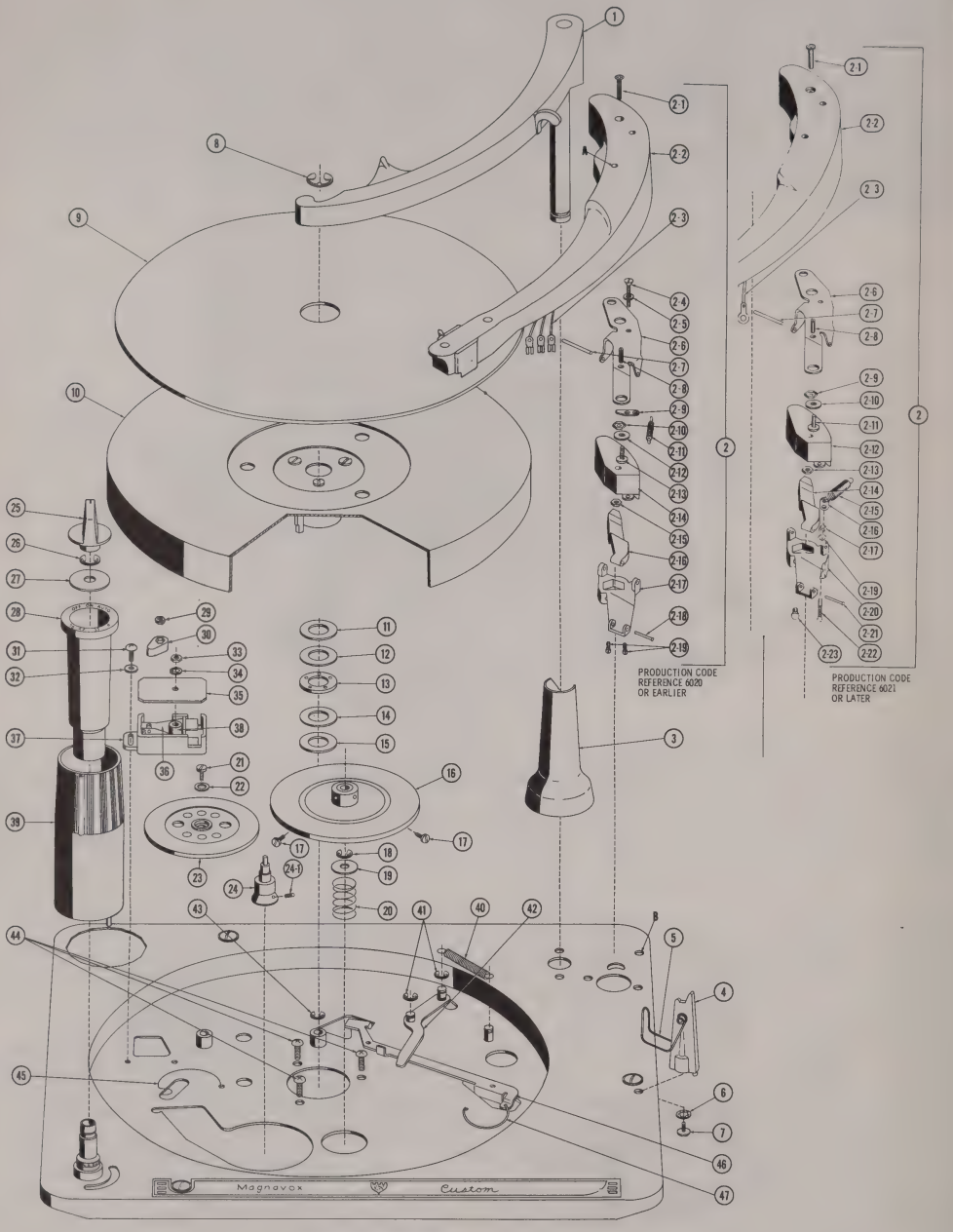


FIG.4 CYCLING MECHANISM WITH CAM GEAR REMOVED



A PHOTOFACT "EXPLODED" VIEW
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FIG. 5A EXPLODED VIEW OF PARTS ABOVE BASE PLATE

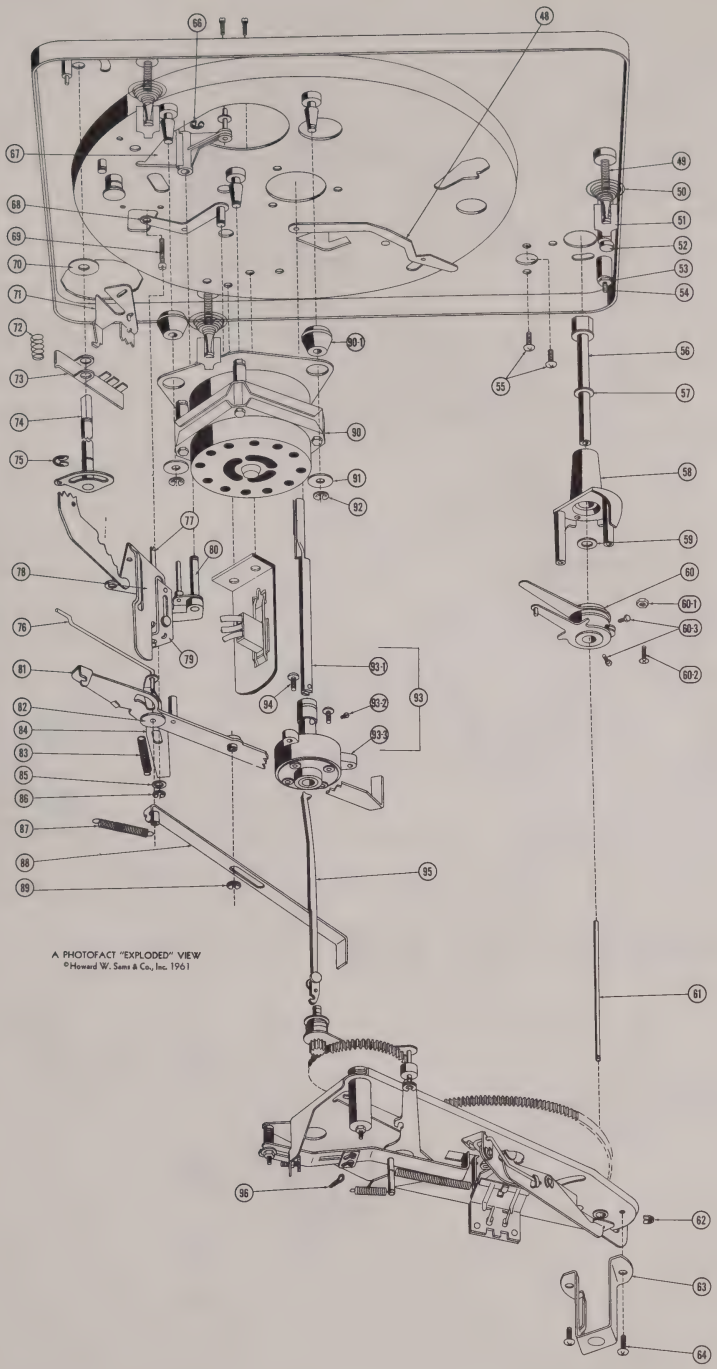

FIG. 5B EXPLODED VIEW OF PARTS BELOW BASE PLATE

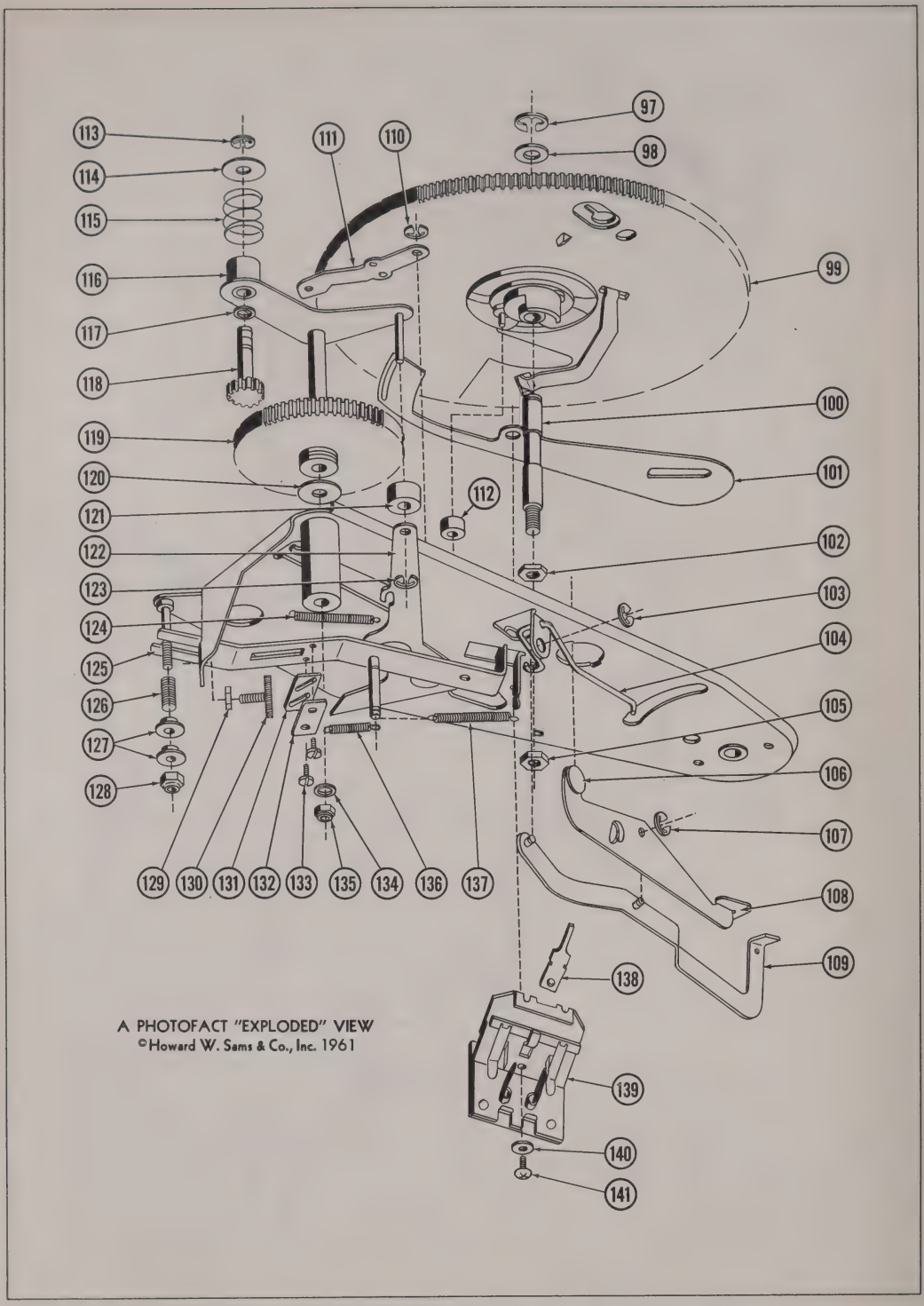

FIG.5C EXPLODED VIEW OF MAIN CAM GEAR ASSEMBLY

TROUBLE CHART

Symptom	Cause	Remedy
Faulty tracking.	1. Pickup lead trapped or tight. 2. Following-pin touching bottom of cam groove. 3. Striker feed lever (101) resting on sub-plate. 4. Bad stylus. 5. Insufficient stylus pressure.	1. Loosen pickup lead. 2. Adjust following-pin by turning adjustment screw clockwise. 3. Adjust lever until it clears the rear end of the sub-plate by 1/16". 4. Replace stylus. 5. See "Stylus Pressure Adjustment".
Turntable runs slow, has background rumble, noisy running, or wow.	1. Extra or incorrect washer under turntable bearing. 2. Dirty or dry bearing. 3. Damaged thrust washer. 4. Damaged ball in race. 5. Ball binding in thrust cage. 6. No end play in bearing.	1. Remove or replace washer. 2. Clean and lubricate. 3. Replace washer. 4. Replace ball. 5. Free and lubricate. 6. Make sure turntable bearing with "C" washer in place has .015" maximum end play.
Motor pulley flutters or causes cross modulation.	1. Bent motor spindle. 2. Enlarged bore in pulley. 3. Burr on motor spindle.	1. Straighten or replace. 2. Replace pulley. 3. Remove burr.
Motor pulley causing wow or slow running.	1. Upper face of idler wheel overlapping step of motor pulley. 2. Lower face of idler wheel overlapping step of motor pulley.	1. Adjust so it contacts the proper step. 2. Adjust so it contacts the proper step.
Idler wheel causing wow or noisy running.	1. Distorted idler wheel.	1. Replace.
No signal output with changer running.	1. Shorted muting switch. 2. Bad cartridge.	1. Repair or replace. 2. Replace cartridge.
Slow running.	1. Distorted idler swivel arm (67).	1. Idler swivel arm must be square to motor spindle.

Ref. No.	Part No.	Description
1	523028-1	Balance Arm Assembly
2	523082-1	Tone Arm Ass'y. (Less Pickup) Production Code Ref. 6020 or earlier includes items 2-1 through 2-19 below.
2-1	522781-1	Tone Arm Mounting Screw
2-2	523051-1	Tone Arm (Plastic Molding Only)
2-3	523187-1	Pickup Lead Assembly
2-4	523088-1	Stylus Weight Adj. Screw
2-5	522892-1	Washer
2-6	522782-1	Tone Arm Mounting Plate
2-7	522783-1	Tone Arm Mounting Plate Pivot Pin
2-8	523093-1	Height Adj. Screw
2-9	523090-1	Weight Adj. Spring Bracket
2-10	523092-1	Height Adj. Lock Nut
2-11	523089-1	Counter Balance Spring
2-12	522892-1	Washer
2-13	523065-1	6BA x 3/16" Rd. Hd. Screw
2-14	523091-1	Tone Arm Counterweight
2-15	522916-1	Tone Arm Mtg. Nut
2-16	522788-1	Tone Arm Lift Cantelever
2-17	523094-1	Tone Arm Swivel Bracket
2-18	523066-1	Lift Cantelever Pivot
2-19	522787-1	Swivel Bracket Adj. Screws
2	523218-1	Tone Arm Ass'y. (Less Pickup) Production Code Ref. 6021 or later includes items listed below.
2-1	522781-1	Tone Arm Mounting Screw
2-2	523051-1	Tone Arm (Plastic Molding Only)
2-3	523187-1	Pickup Lead Assembly
2-6	523226-1	Tone Arm Mounting Plate
2-7	522783-1	Tone Arm Mounting Plate Pivot Pin
2-8	523093-1	Height Adj. Screw
2-9	523092-1	Height Adj. Lock Nut
2-10	522892-1	Washer
2-11	523065-1	6BA x 3/16" Rd. Hd. Screw
2-12	523091-1	Tone Arm Counterweight
2-13	522916-1	Tone Arm Mtg. Nut
2-14	522788-1	Tone Arm Lift Cantelever
2-15	523089-1	Counter Balance Spring
2-16	523219-1	Weight Adj. Spring Plate
2-17	523215-1	Weight Adj. Screw Mtg. Nut
2-19	523216-1	Wave Washer
2-20	523220-1	Tone Arm Swivel Bracket
2-21	523066-1	Lift Cantelever Pivot
2-22	523217-1	Stylus Weight Adj. Screw
2-23	522787-1	Swivel Bracket Adj. Screw
3	523174-1	Balance Arm Column
4	522500-1	Tone Arm Rest
5	522813-1	Tone Arm Rest Clip
6	522859-1	Washer
7	522860-1	Tone Arm Rest Mtg. Screw
8	522862-1	Turntable Retainer Clip
9	522800-1	Turntable Cover (White)
	523242-1	Turntable Cover (Light Gray)
	523243-1	Turntable Cover (Dark Gray)
10	522274-1	Turntable Assembly
11	522298-1	9/16" ID Rubber Turntable Washer
12	522290-1	Turntable Steel Thrust Washer
13	522275-1	Turntable Thrust Ball Assembly
14	522290-1	Turntable Steel Thrust Washer
15	523069-1	Self-Aligning Turntable Washer
16	523165-1	Drive Wheel and Screw Assembly
17	522307-1	Drive Wheel Mounting Screw
18	522530-1	C- Clip
19	523097-1	3/16" Stamped Washer
20	523096-1	Drive Pinion Comp. Spring
21	522302-1	Idler Wheel Mtg. Screw
22	522303-1	3/32" Fibre Washer
23	523168-1	Idler Wheel (Production Code Ref. 6026 or earlier)
24	523166-1	Motor Pulley 60 Cycle "Yellow"
	523166-2	Motor Pulley 60 Cycle "Black"
	523166-3	Motor Pulley 60 Cycle "Silver"
	523166-4	Motor Pulley 60 Cycle "Red"
	523166-5	Motor Pulley 60 Cycle "Blue"
24-1	523188-1	Motor Pulley Mtg. Screw (supplied with pulley) (Production Code Ref. 6027 or later)
24	523231-1	Motor Pulley and Spring 60 Cycle "Yellow"
	523232-1	Motor Pulley and Spring 60 Cycle "Black"
	523233-1	Motor Pulley and Spring 60 Cycle "Silver"
	523234-1	Motor Pulley and Spring 60 Cycle "Red"
	523235-1	Motor Pulley and Spring 60 Cycle "Blue"
24-1	522721-1	Motor Pulley Coupling Spring (Some Models)
25	523170-1	On-Off Control Knob
26	522538-1	C- Clip
27	523189-1	7/8" Washer
28	523190-1	Control Indicator
29	523191-1	Switch Actuator Mtg. Nut
30	523156-1	On-Off Switch Actuator
31	523192-1	Switch Adj. Screw
32	522892-1	Washer
33	523193-1	Switch Cover Mounting Nut
34	522928-1	Shakeproof Washer
35	523186-1	Switch Cover
36	523157-1	Switch Contact Strip
37	523159-1	Switch Base
38	523158-1	Switch Contact Separator
39	523169-1	Speed Control Knob
40	523163-1	Auto/Off Aux. Lever Spring
41	522530-1	C - Clip
42	523161-1	Auto/Off Aux. Lever
43	522530-1	C - Clip
44	522512-1	Spindle Mtg. Screws
45	523160-1	Contact Bar Spring
46	523162-1	Auto/Off Lever
47	523164-1	Auto/Off Lever Spring
48	523194-1	Auto/Off Cocking Lever Ass'y.
49	523122-1	Mounting Screw
50	523181-1	Mounting Spring
51	523123-1	Mounting Clip
52	523153-1	Tone Arm Set Down Adj. Screw
53	523195-1	2 BA Lock Nut
54	523185-1	Tone Arm Height Adj. Screw
55	523087-1	Balance Arm Housing Mtg. Screws
56	523067-1	Tone Arm Pivot Tube and Nut Ass'y.
57	523177-1	Fluon Washer

Ref. No.	Part No.	Description
58	523071-1	Tone Arm Pivot Housing (Early Type)
	523207-1	Tone Arm Pivot Housing (Late Type)
59	522932-1	Washer
60	523137-1	Tone Arm Friction Clutch Assy.
60-1	522934-1	Self-Lock Nut
60-2	522937-1	6 BA 3/8" Screw
60-3	523106-1	Clutch Mtg. Screw
61	522941-1	Tone Arm Lift Spindle
62	522502-1	C - Clip
63	523151-1	Guard and Support Bracket .
64	523087-1	Tone Arm Housing Mtg. Screws
66	522530-1	C - Clip
67	523138-1	Idler Swivel Arm and Spindle Assy.
68	523148-1	Switch Control Lever Assy.
69	523196-1	Idler Withdrawal Pin
70	523197-1	5/8" Washer
71	523141-1	Speed Change Slide Lever
72	523124-1	Locking Lever Spring
73	523198-1	Speed Change Locking Lever
74	523140-1	On-Off Control Lever
75	522538-1	C - Clip
76	523142-1	On-Off Control Link
77	523184-1	Idler Elevating Spindle
78	523199-1	Idler Elevator Bracket
79	523146-1	Idler Elevator Assy.
80	523144-1	Idler Aux. Arm Assy.
81	523145-1	Control Bar Assy.
82	523200-1	9/16" Washer
83	523201-1	Idler Withdrawal Link Spring
84	523147-1	Idler Withdrawal Link
85	522914-1	Washer
86	522530-1	C - Clip
87	523143-1	Auto. Operating Lever Spring
88	523149-1	Auto. Operating Lever
89	522530-1	C - Clip
90	523173-1	Motor Assy. (With Mtg. Plate)
90-1	523202-1	Motor Mtg. Grommet
91	523097-1	Motor Mtg. Washer
92	522530-1	C - Clip
93	522835-2	Spindle and Turntable Spigot Assy.
93-1	523063-1	Spindle Assembly Only
93-2	522286-1	Spindle Set Screw
93-3	523048-1	Turntable Spigot Housing Assy.
94	522836-1	Tone Arm Housing Mtg. Screw

Ref. No.	Part No.	Description
95	522839-1	Record Dropping Pawl Assy.
96	522838-1	Cotter Pin
97	522538-1	C - Clip
98	522933-1	Washer
99	523133-1	Main Cam Gear Assy.
100	523030-1	Cam Gear Spindle
101	522895-1	Striker Feed Lever
102		Nut
103	522530-1	C - Clip
104	523154-1	Tone Arm Lift Lever Spring
105	522912-1	Nut
106	523139-1	Cam Gear Locating Roller
107	522530-1	C - Clip
108	523152-1	Tone Arm Lift Lever
109	523132-1	Tone Arm Height Adj. Lever Assy.
110	522502-1	C - Clip
111	523136-1	Striker Arm Assy.
112	523108-1	Cam Gear Roller
113		C - Clip
114		Washer
115		Spring
116	523134-1	Drive Wheel Carrier
117	523076-1	5/32" Fibre Washer
118	522894-1	Drive Pinion
119	522899-1	Intermediate Gear
120	523097-1	Stamped Washer
121	523135-1	Buffer
122	523130-1	Driver Release Lever Assy.
123	522530-1	C - Clip
124	522731-1	Drive Release Lever Spring
125	522926-1	Record Dropping Slide Assy.
126	522918-1	Dropping Slide Adj. Spring
127	522919-1	Shoulder Washer
128	522737-1	Record Dropping Lock Nut
129	522916-1	Nut
130	522917-1	Pawl Stop Screw
131	522927-1	Record Dropping Pawl Adj. Plate
132	523178-1	Pawl Adj. Lock Plate
133	522929-1	Pawl Adj. Screws
134	522914-1	Washer
135	522737-1	Intermediate Gear Mtg. Nut
136	522925-1	Record Dropping Pawl Spring
137	522950-1	Record Dropping Slide Spring
138	523203-1	Muting Switch Lever
139	523150-1	Muting Switch Assy.
140	522914-1	Washer
141	522512-1	Muting Switch Mtg. Screw.

PHOTOFACT® Folder

MAGNAVOX CHASSIS 83-01-00, -10, 83-02-00, -10, 83-03-00, -10

MAGNAVOX CHASSIS 83-01-00, -10, 83-02-00, -10, 83-03-00, -10

REPRESENTATIVE MODEL
USING CHASSIS 83-01-00

MAGNAVOX CHASSIS 83-01-00, -10, 83-02-00, -10, 83-03-00, -10

TRADE NAME	Magnavox Chassis 83-01-00, 83-01-10, 83-02-00, 83-02-10, 83-03-00, 83-03-10
MANUFACTURER	The Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	AC Operated 4 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 48 Watts, .47 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER F200C – SEE SIMILAR COLLARO CONQUEST (REVISED) – PHOTOFACT SET 408 FOLDER 6 OR RECORD CHANGER MANUAL RC-11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KT516

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

TUBES

ITEM No.	USE	TYPE
	◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆	
V1	Channel 1 AF Amp. - Channel 2 AF Amp.	6EU7
V2	Channel 1 Output	EL84/6BQ5
V3	Channel 2 Output	EL84/6BQ5
V4	Rectifier	6CA4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	350	270021-85	AFH4-52	D0663	FP431.35	TMQ-4433	TVL-4622.3	Note 1
B	■40	350							Note 1
C	▲20	300							Note 1
D	30	25							Note 1
C2	16	25NP	270040-4	PRS7350	BBR16-150	TCN2516		TVANS-1204.3*	
C3	16	25NP	270040-4	*PRS7350	BBR16-150	TCN2516		TVANS-1204.3*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. C1B is 35mfd and C1D is 100mfd in Chassis 83-03 (C1 Part #270021-92).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

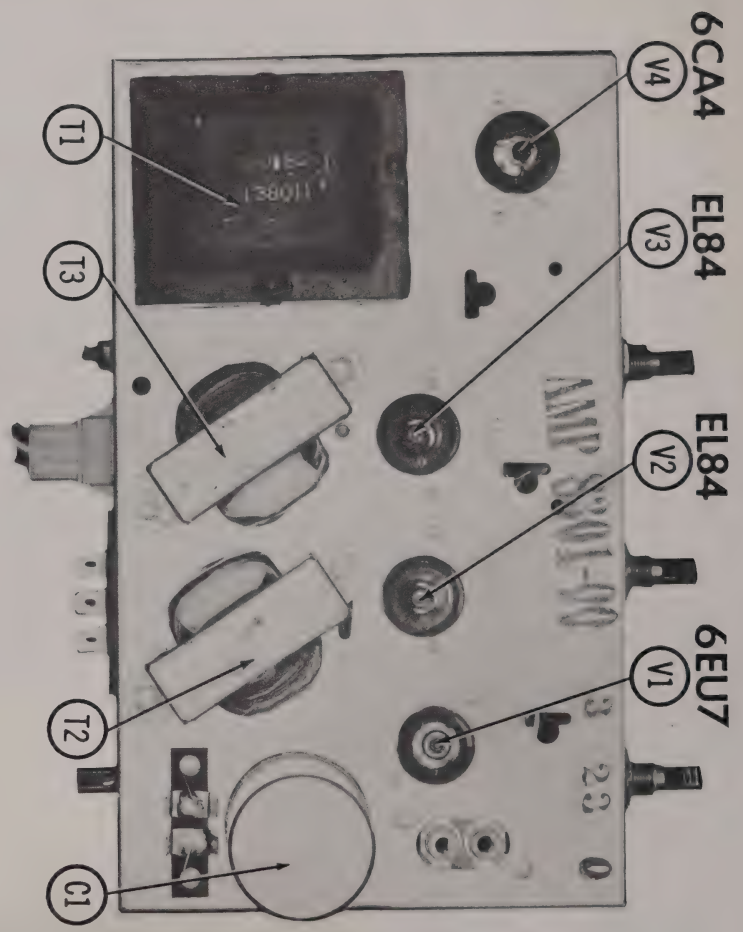
ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	330		BPD-00033	DD-331	L10T33	CCD-331	B-333	10TS-T33
C5	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C6	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C9	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3.3meg	½	220151-26	BT-180 *			FA36DT155*	Loudness, Channel 1
	1.6meg Tap							
B	3.3meg	½		STR-180 *			RU36DT155*	Loudness, Channel 2
	1.6meg Tap							
C	Shaft			Not Req.			CS3500	
R2A	1meg	½	220151-25	B-69	AD47-1meg-S		FA16L	Treble, Channel 1
B	1meg	½		SR-69	Not Req.		RU16L	Treble, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R3A	7meg	½	220072-42	B-89	A47-7.5meg-S	Q11-142	U82	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	50K	½	220146-25①	TT-31	B47-50K-S	B11-123	PTA54L	Balance
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

① Chassis 83-02 use Part #220072-25.
* Do not use tap 1.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	220K			(47K) *	R15	6800Ω			(47K) *
R6	470K				R16	15K			
R7	150K				R17	820Ω			
R8	6800Ω				R18	470K			
R9	15K				R19	100Ω 1W			
R10	820Ω				R20	4700Ω 1W			
R11	470K				R21	100Ω 1W			
R12	220K				R22	100Ω			
R13	470K				R23	100Ω			
R14	150K								

* Used in Chassis 83-02 and 83-03.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MAGNAVOX PART No.	REPLACEMENT DATA
K1	Tone Comp.	(2) 100mmf, (2) 1000mmf, (2) 220K	250362-1	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MAGNAVOX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .47A	450VCT @ .070A DC	6.3V @ 2.8A	300182-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5700Ω	3-4Ω	320082-2	A-3019	A-8092	26S49	S-5Z	
T3	5700Ω	3-4Ω	320082-2	A-3019	A-8092	26S49	S-5Z.	

SPEAKER

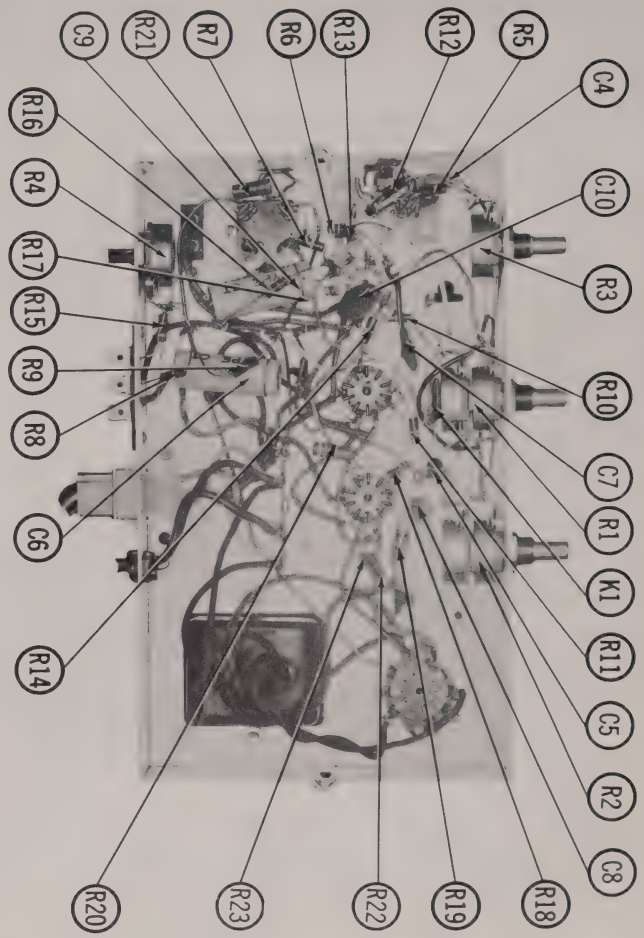
ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MAGNAVOX PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	584100-1 *	8A31	* Used in Model 1SC252F
SP2	5"	PM	3-4Ω	584028 *	5A15TZ3.2	‡ May be used in some versions
SP3	8"	PM	3-4Ω	584100-1 *	8A31	
SP4	5"	PM	3-4Ω	584028 *	5A15TZ3.2	
	8"	PM	3-4Ω	584090-1 ‡	8A21	
	5"	PM	3-4Ω	580058-1 ‡	5A15TZ3.8	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

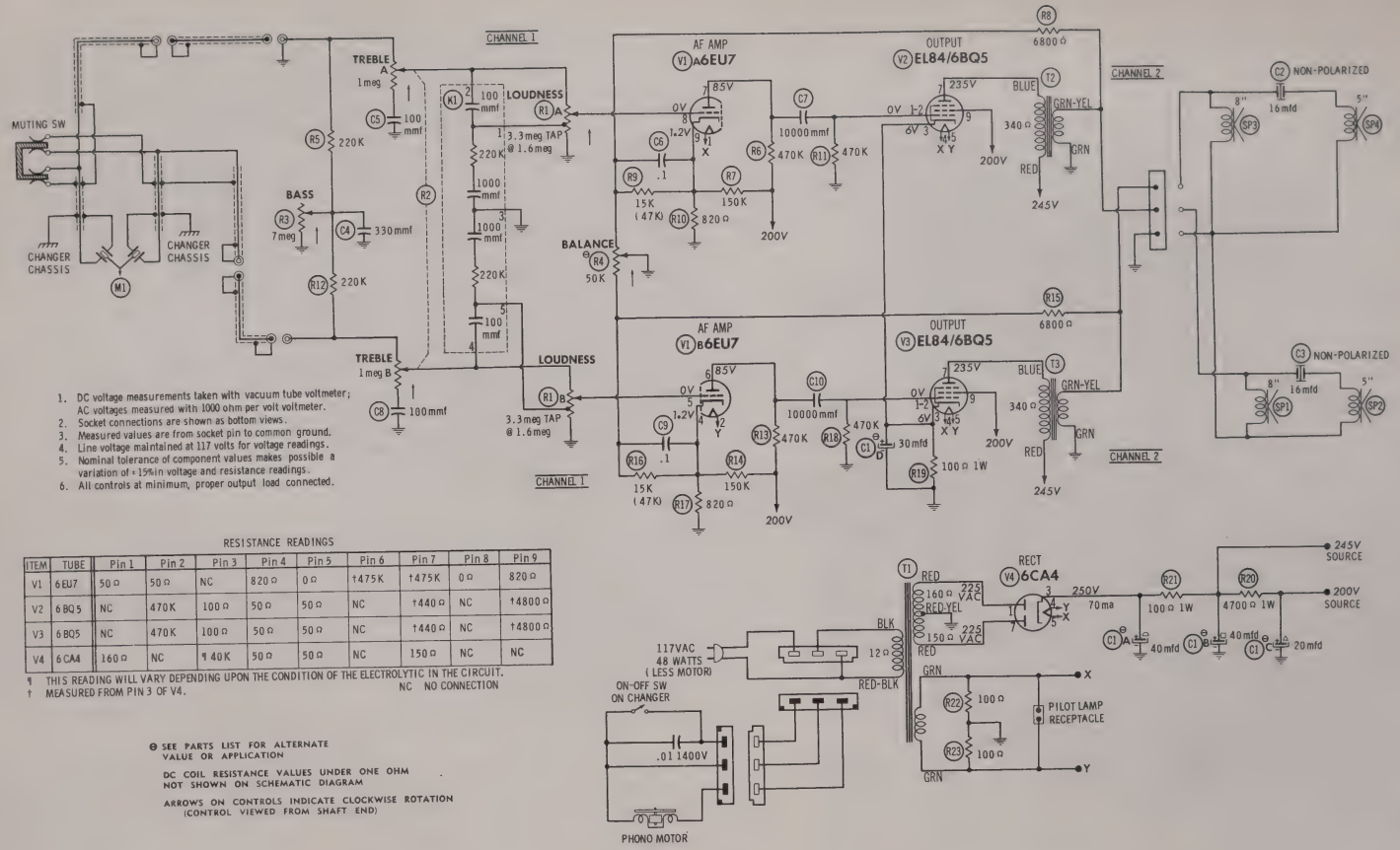
ITEM No.	REPLACEMENT DATA								NOTES
	MAGNAVOX PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M1	560250-3	560234-1* (LP) 560235-1* (STD)	13TB	Not Req.	26S	S1-1 * & S3-3 *	8TA4-S	N-8TA-S *	

CHASSIS—BOTTOM VIEW



MAGNAVOX CHASSIS 83-01-00, -10, 83-02-00, -10, 83-03-00, -10

FOLDER 9



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6EU7	50Ω	50Ω	NC	820Ω	0Ω	†475K	†475K	0Ω	820Ω
V2	6BQ5	NC	470K	100Ω	50Ω	50Ω	NC	†440Ω	NC	†4800Ω
V3	6BQ5	NC	470K	100Ω	50Ω	50Ω	NC	†440Ω	NC	†4800Ω
V4	6CA4	160Ω	NC	¶ 40K	50Ω	50Ω	NC	150Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V4.
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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MAGNAVOX CHASSIS 83-01-00, -10, 83-02-00, -10, 83-03-00, -10

PHOTOFACT® Folder with CIRCUITRACE®

PHILCO MODEL T-901BK, T-901BR

PHILCO MODEL T-901BK, T-901BR

PHILCO MODEL T-901BK, T-901BR

TRADE NAME	Philco Model T-901 (Code 124)		
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	6 Volts DC	RATING	15MA @ 6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1600KC		30MA @ 6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment tools: A1, A2, A3, A4, A8, A9. GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5, A6, A7.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to RF stator lug (center section) of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC	"	A6, A7	"
4.	"	600KC	600KC	"	A8	Adjust for maximum output while rocking tuning gang.
5.	"	"	"	"	A9	Adjust for maximum output. Repeat steps 2, 3, 4 and 5 several times ending with step 3.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KF424

SET 535 FOLDER 10

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	T1233	RF Amplifier	2N1632			PNP
X2	T1033	Mixer	2N412			PNP
X3	T1306	Oscillator	2N412	2N486		PNP
X4	T1233	1st IF Amplifier	2N410			PNP
X5	T1252	2nd IF Amplifier	2N410	2N483		PNP
X6	T1033	Detector	2N406	2N486		PNP
X7	T1001	Driver	2N406	2N362	2N406	PNP
X8	T1003 *	Output	2N408			PNP } Matched Pair
X9	T1003 *	Output	2N408			PNP }

* Alternate Type T 1007

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	40	6	30-2588-3	PTT-6040	NLW40-6	TT6X40	MLV40-6	TE-1095	
C2	10	6	30-2591-9	PTT-6010	NLW10-6	TT6X10	MLV10-6	TE-1087	
C3A	200	6	30-2603-3						①
B	400	6							

① Some versions may use 200-100mfd (Part #30-2602-2) or 300-400mfd (Part #30-2602-3) in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C5	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C6	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C7	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C8	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C9	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C10	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C11	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C12	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C13	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C14	8200		BPD-01	DD-822	BYA10S1	CCD-822	B-282	5HK-S10
C15	25000				H-05S25	IDP-1-253	TA-125	TG-S25
C16	100000		C80V104AM	UK10-104	H-05P1	IDP-2-104	TA-010	TG-P10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	4000Ω	½	33-5588-15	B-11				Volume
B	Switch			KR-2				Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R2	1000Ω			
R3	15000Ω			
R4	1800Ω			(1500Ω) *
R5	47K			
R6	39K			
R7	3300Ω			
R8	12K			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R9	3900Ω			
R10	47000Ω			
R11	1000Ω			
R12	1500Ω			(1200Ω) *
R13	1500Ω			(1200Ω) *
R14	8200Ω			
R15	15K			

(CONTINUED ON REAR PAGE)

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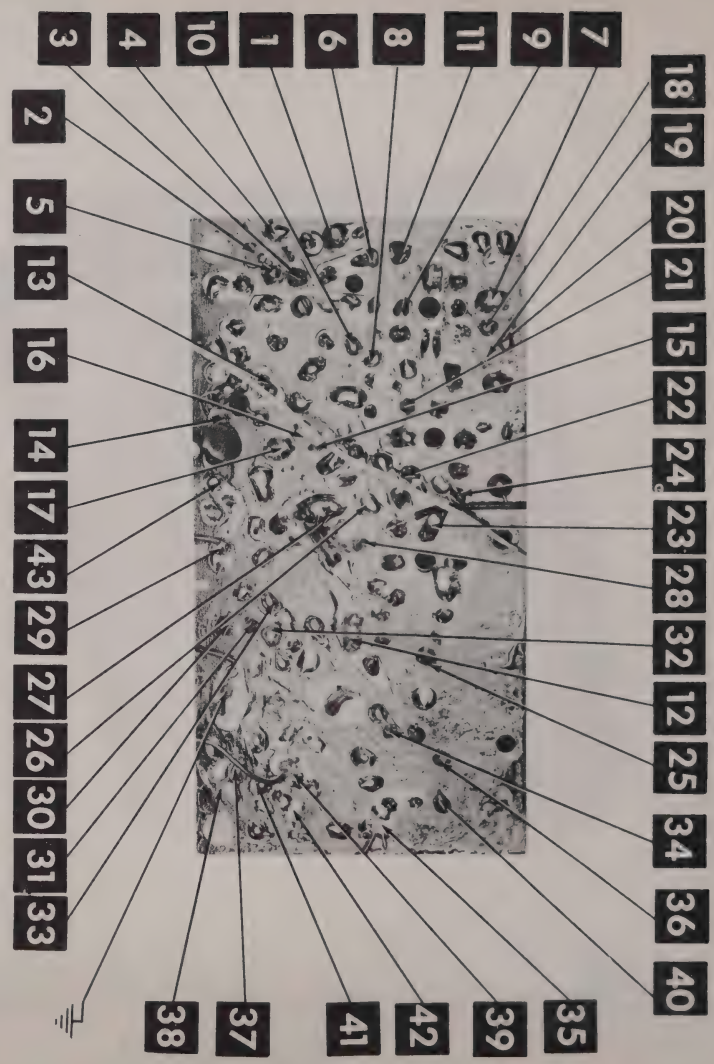
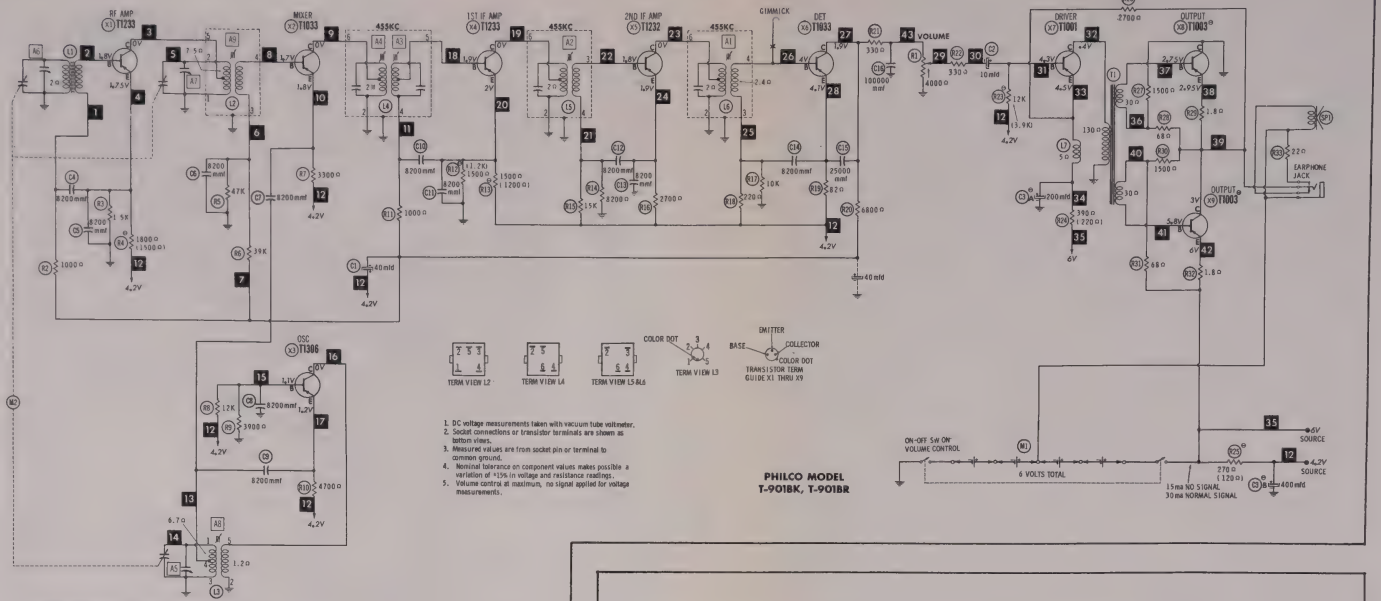
PRINTED BOARD





1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

PHILCO MODEL T-901BK, T-901BR

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT-REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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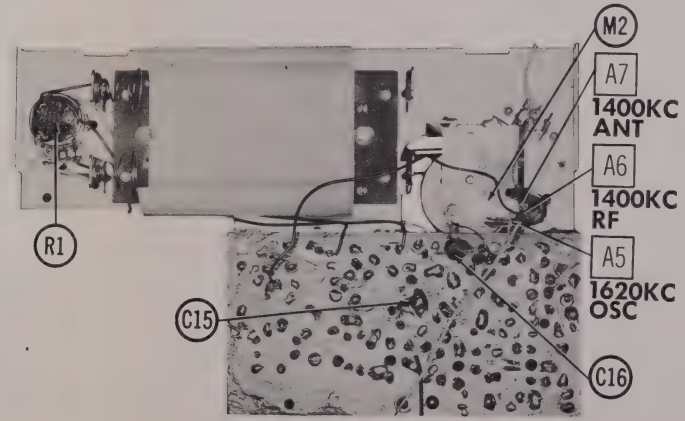


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R16	2700Ω				R25	270Ω			(120Ω) *
R17	10K				R26	2700Ω			
R18	220Ω				R27	1500Ω			
R19	82Ω				R28	68Ω			
R20	6800Ω				R29	1.8Ω			
R21	330Ω				R30	1500Ω			
R22	330Ω				R31	68Ω			
R23	12K			(3900Ω) *	R32	1.8Ω			
R24	390Ω			(220Ω) †	R33	22Ω			

* Value used in Run 1 versions.
† Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	32-4668-12		2003		T525	
L2	RF	32-4793-1					
L3	Osc.	32-4669-8					
L4	1st IF	32-4738-1					
L5	2nd IF	32-4738-11					
L6	3rd IF	32-4738-12					
L7	RF Choke (400uh)	32-4685-1	TV-202	4648	RTC-9172	T870	

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.1	PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3	1	32-8946-1					
		SEC. 2						
		1						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	4"	PM	10-12Ω	36-1675-13	4A1Z12	

BATTERIES

ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			230 *		A-100 *		M-13R*	* 4 Required

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M2	Tuning Cap. Printed Board	31-2791-1 54-5751-1	2 Gang

CABINETS & CABINET PARTS

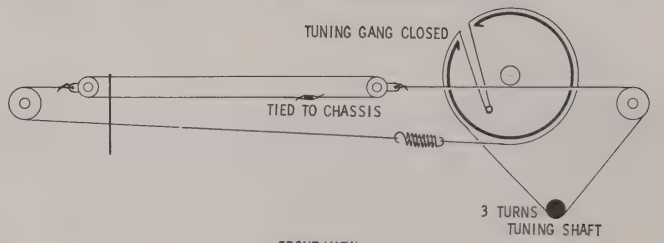
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Scale	54-5747-1	
Dial Pointer	28-9739-12	
Knob	28-11588-1	Model T-901BK
Knob	28-11588-6	Model T-901BR
Cabinet Front	54-5746-1	Model T-901BK
Cabinet Front	54-5746-2	Model T-901BR
Cabinet Back	51-0135-3	Model T-901BK
Cabinet Back	51-0135-2	Model T-901BR

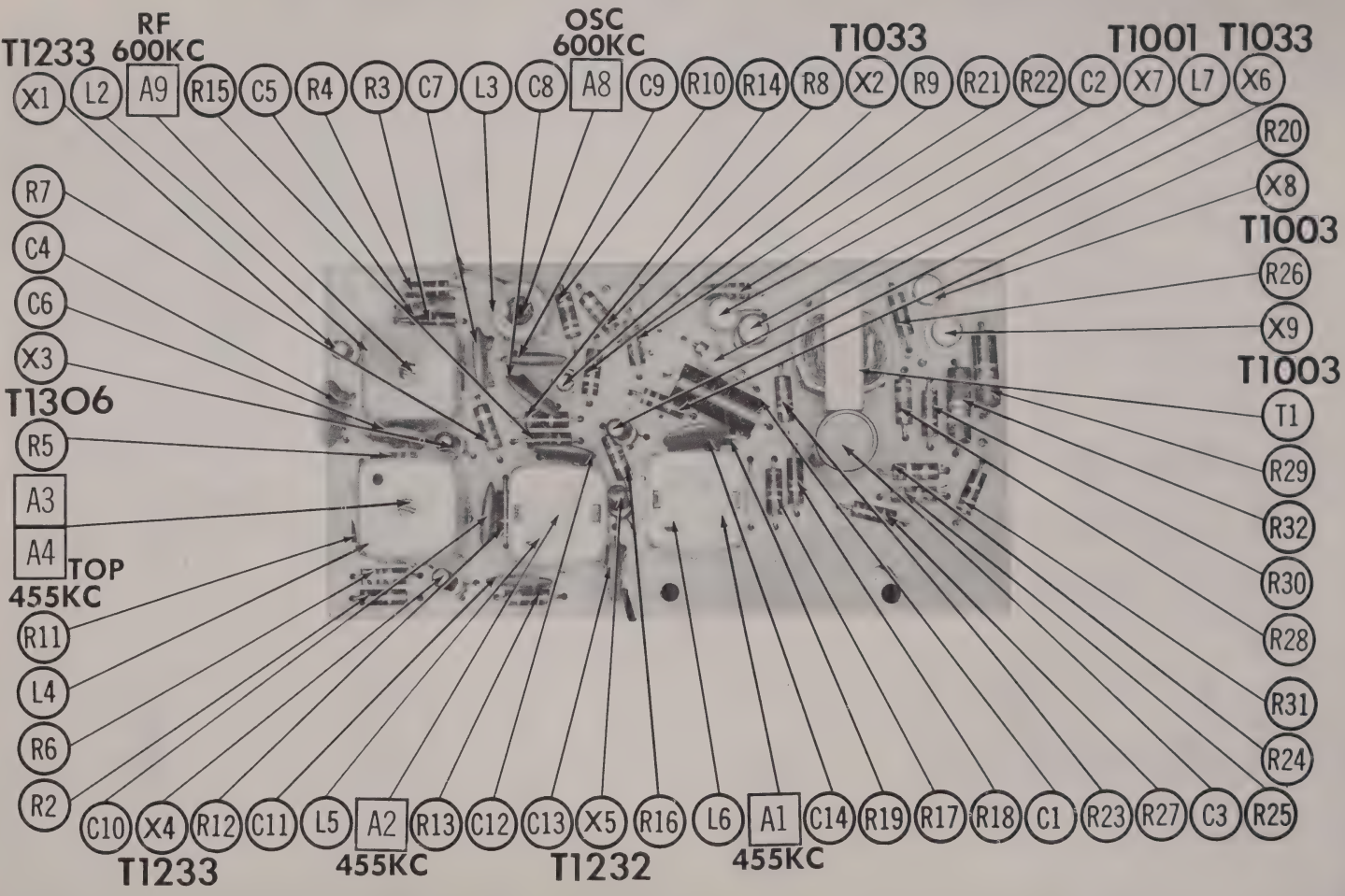
WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

DIAL CORD STRINGING



FRONT VIEW



CHASSIS TOP VIEW

PHOTOFACT® Folder with CIRCUITRACE®

POLYRAD MODEL P-86

POLYRAD MODEL P-86

POLYRAD MODEL P-86

TRADE NAME	Polyrad Model P-86		
IMPORTER	Polyrad Corp., 521 Broadway, Cincinnati 2, Ohio		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	9 Volts DC	RATING	5MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1600KC		15MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A4, A7..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5, A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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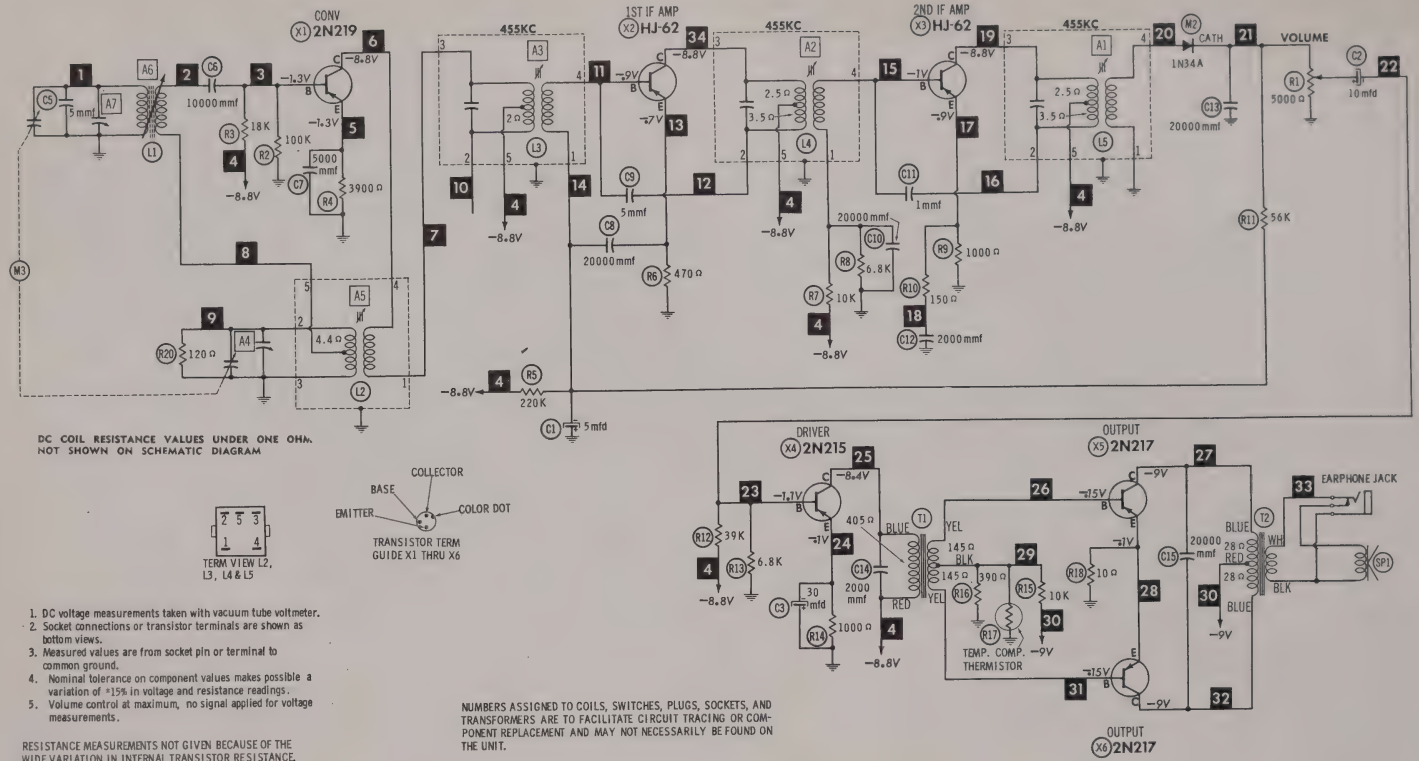
KF506

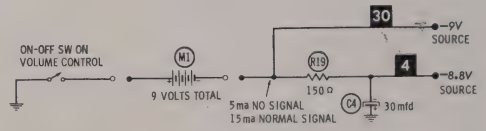
SET 535 FOLDER 11



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.



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with CIRCUITRACE®

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POLYRAD MODEL P-86

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N219	Converter	2N412	2N486	2N219	PNP
X2	HJ-62	1st IF Amplifier	2N410	2N483		PNP
X3	HJ-62	2nd IF Amplifier	2N410	2N483		PNP
X4	2N215	Driver	2N406	2N362	2N104	PNP
X5	2N217	Output	2N408	2N631	2N217	PNP
X6	2N217	Output	2N408	2N631	2N217	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	POLYRAD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	5	6		PTT-6005	NLW5-15	TT6X5	MLV5-6	TE-1084	
C2	10	3		PTT-3010	NLW10-3	TT3X10	MLV10-3	TE-1053	
C3	30	6		PTT-6030	NLW30-6	TT6X30	MLV30-6	TE-1092	
C4	30	10		PTT-10030	NLW30-15	TT15X30	MLV35-15	TE-1158	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C6	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C7	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C8	20000		C80V203AM	DA-203	H-05S2		TA-210	TG-S20
C9	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C10	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	1		NPO-DI 1.0	TCZ-1			CNO-510	10TCC-V10
C12	2000		BPD-002	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C13	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C14	2000		BPD-002	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C15	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	POLYRAD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/10						Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	100K				R12	39K			
R3	18K				R13	6800Ω			
R4	3900Ω				R14	1000Ω			
R5	220K				R15	10K			
R6	470Ω				R16	390Ω			
R7	10K				R17	Temp. Comp.			
R8	6800Ω				R18	10Ω			
R9	1000Ω				R19	150Ω			
R10	150Ω				R20	120K			
R11	5600Ω								

PRINTED BOARD

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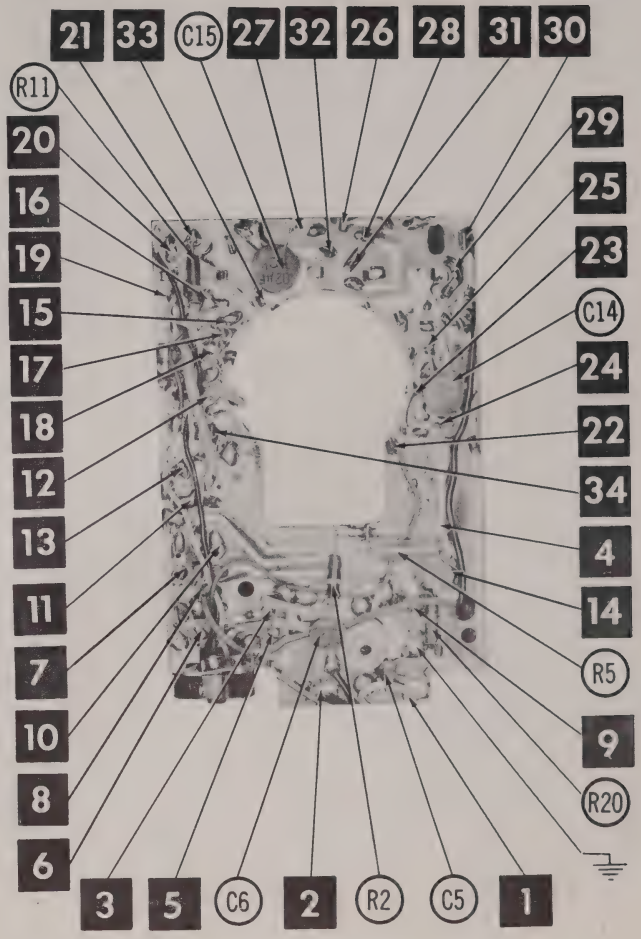


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		POLYRAD PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick						
L2	Oscillator						
L3	1st IF						
L4	2nd IF						
L5	3rd IF						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	POLYRAD PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1, 2	1	RL-1051			TR-39		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	POLYRAD PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2500Ω CT	6-8Ω	RL0-042					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	POLYRAD PART No.	QUAM PART No.	
SP1	2½"	PM	6-8Ω	SPM-071		

BATTERIES

ITEM No.	VOLTAGE	POLYRAD PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	BL-006P		2U6		2-16		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		POLYRAD PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N34A			1N34A	1N34A	Detector (Pigtail)

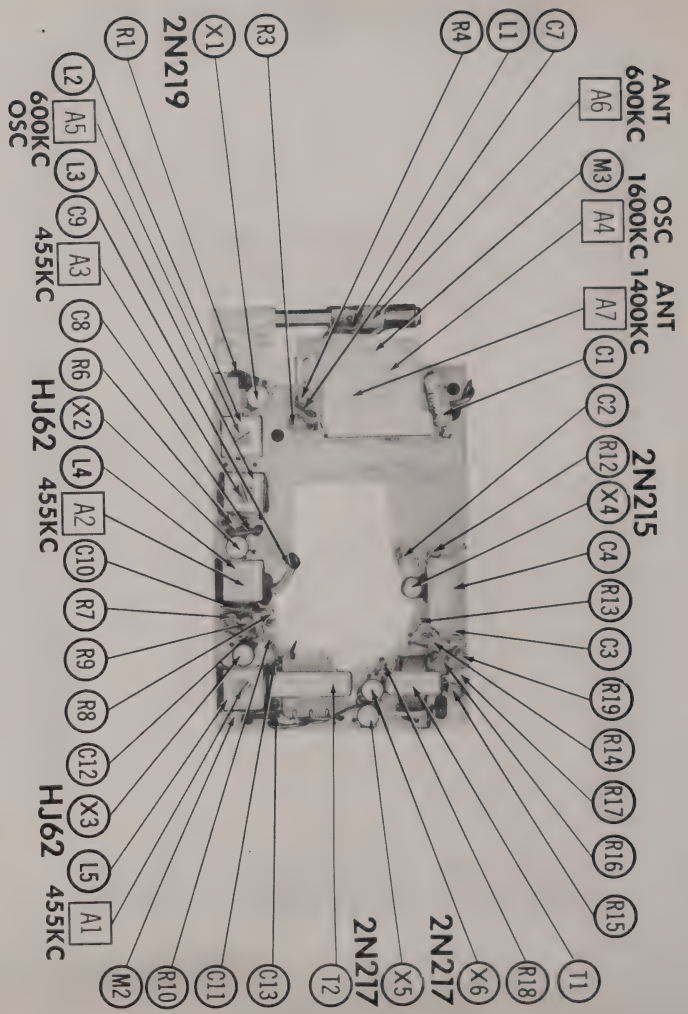
MISCELLANEOUS

ITEM No.	PART NAME	POLYRAD PART No.	NOTES
M3	Tuning Cap.		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



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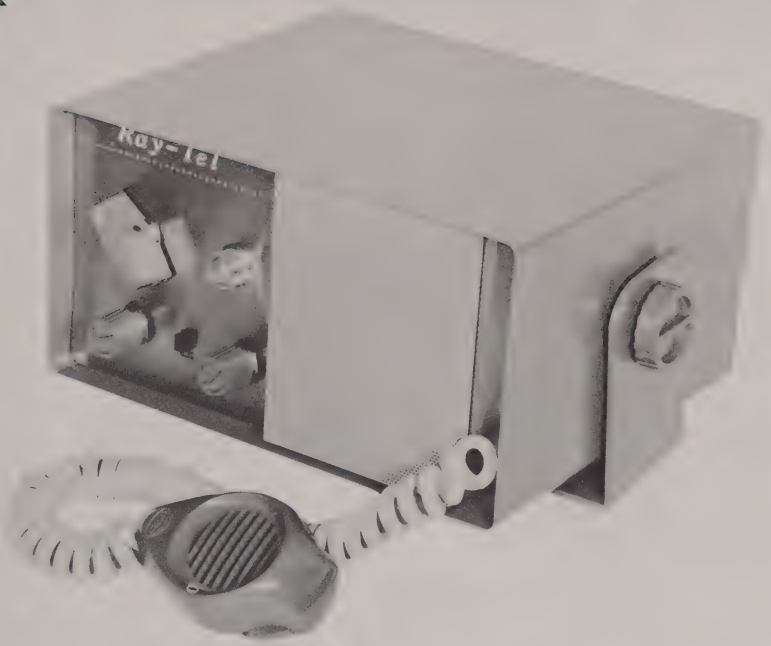
RAYTHEON MODEL
RAY-TEL (TWR-1)

RAYTHEON MODEL
RAY-TEL (TWR-1)



RAYTHEON MODEL
RAY-TEL (TWR-1)

TRADE NAME	Raytheon Model Ray-Tel (TWR-1)
MANUFACTURER	Raytheon Co., Distributor Products Div., 411 Providence Turnpike, Westwood, Mass.
TYPE SET	AC-Battery Operated 8 Tube Crystal Controlled Citizens Band Transmitter — Receiver
POWER SUPPLY	110-120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	65 Watts, .6 Amp. @117 Volts AC (or) 5 Amp. @12.6 Volts DC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 23

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

SET 535 FOLDER 12

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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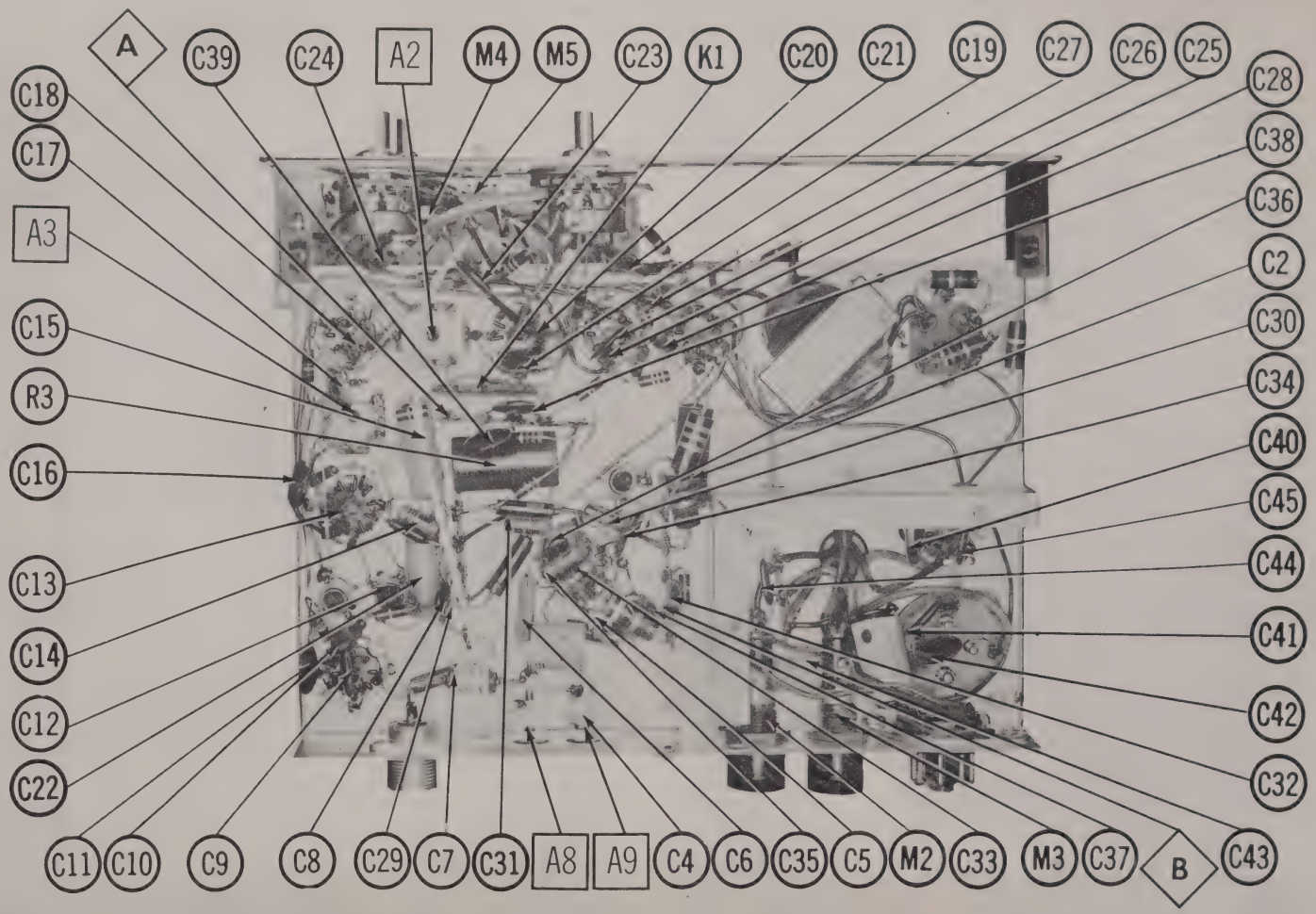
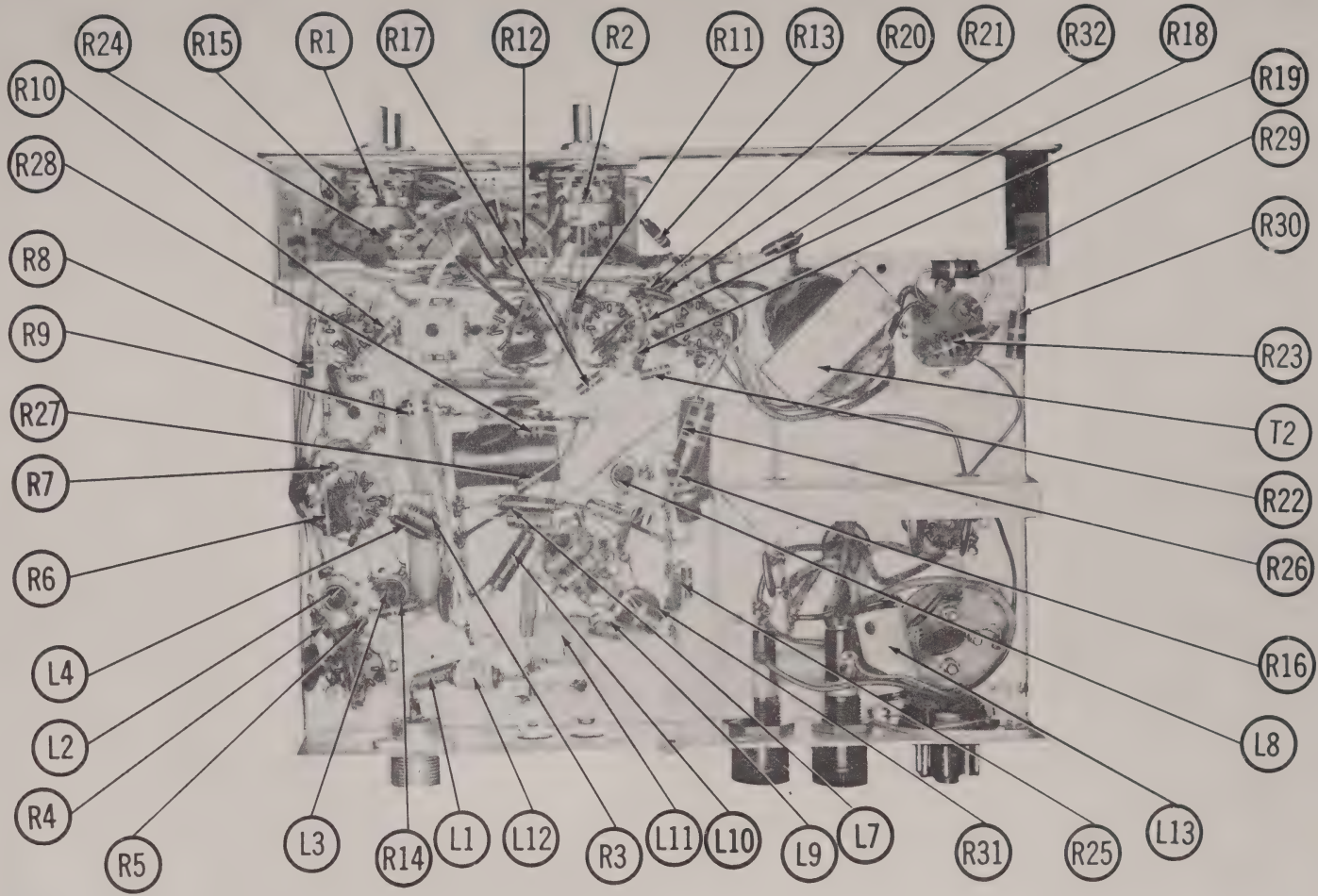
KZ485

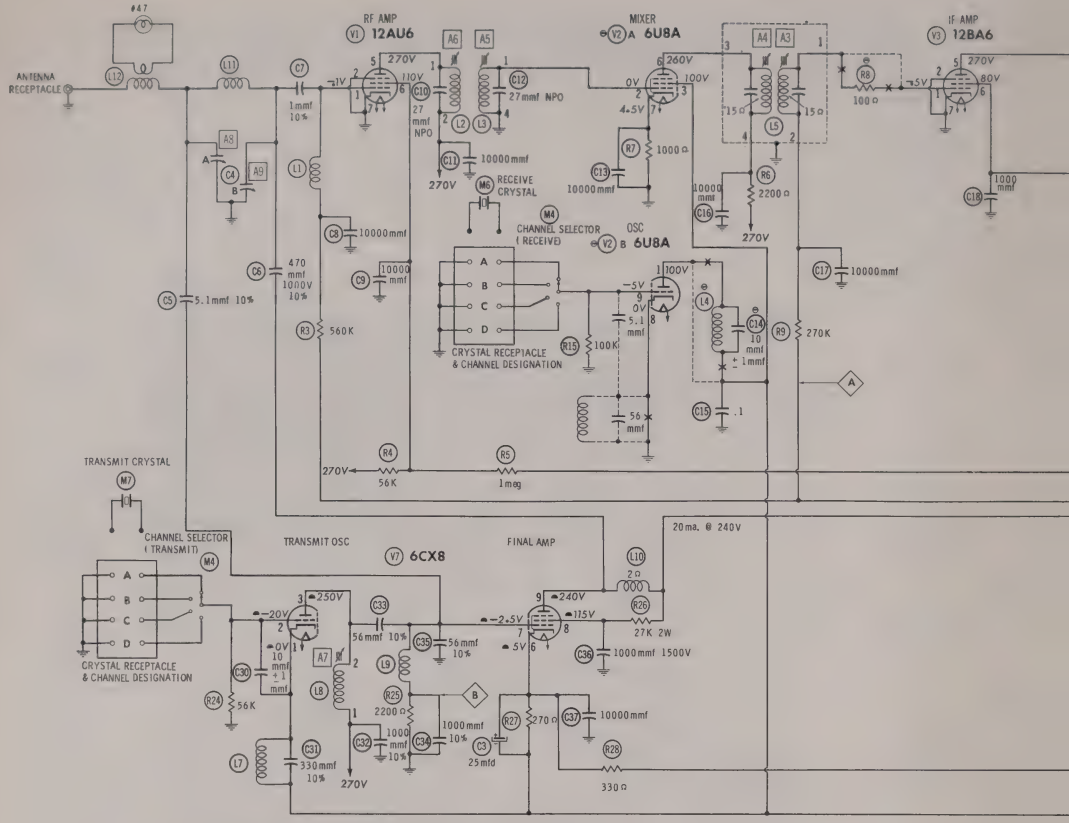
DATE 6-61 SET 535 FOLDER 12



CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU6	2.1meg	0Ω	0Ω	.1Ω	†200Ω	†56K	0Ω		
V2	6U8A	†27K	.1Ω	†27K	.1Ω	.1Ω	†2400Ω	1000Ω	0Ω	100K
V3	12BA6	1.5meg	0Ω	0Ω	.1Ω	†200Ω	†56K	0Ω		
V4	6BJ7	0Ω	550K	0Ω	.1Ω	0Ω	†2meg	†1.1meg	270K	2.6meg
V5	12CR6	0Ω	NC	0Ω	.1Ω	†270K	†1meg	2.2meg		
V6	12AQ5	560K	470Ω	0Ω	.1Ω	†460Ω	†200Ω	560K		
V7	6CX8	⁃0Ω	56K	⁃†200Ω	.1Ω	.1Ω	⁃270Ω	2200Ω	†27K	†460Ω
V8	12X4	225Ω	NC	.1Ω	0Ω	NC	210Ω	¶		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
⁃ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM PIN 7 OF V8.
NC NO CONNECTION
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.

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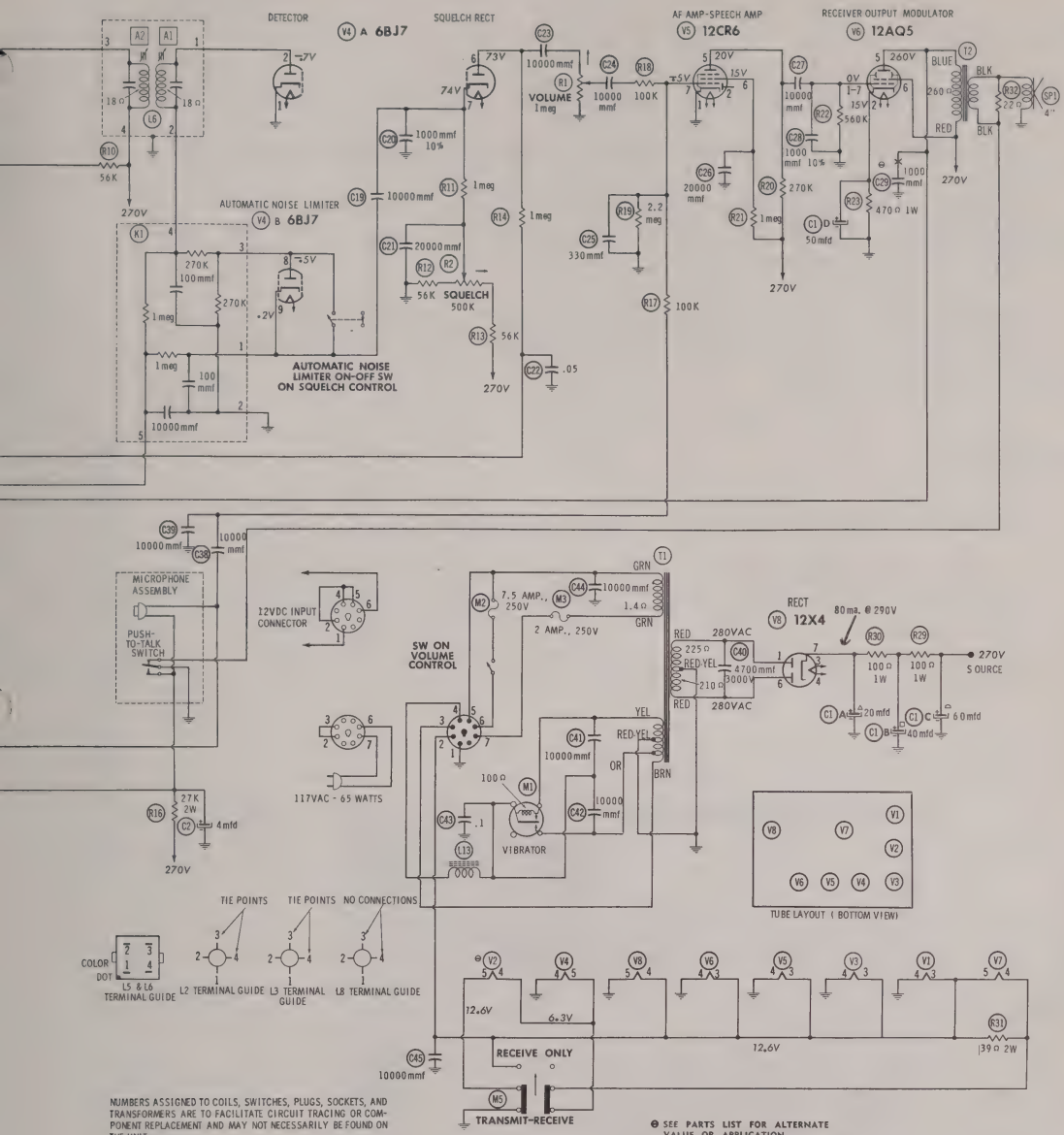


NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of +15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

**RAYTHEON MODEL
RAY-TEL (TWR-1)**

ALIGNMENT INSTRUCTIONS

RECEIVER

1. Connect DC probe of VTVM to point Ⓐ, common to chassis.

   Turn squelch control to off position, (maximum counter clockwise).

   Connect high side of Signal Generator (455KC, 400∿ mod.), thru .1mfd to pin 2 of V2A, Low side to chassis. Adjust A1, A2, A3, and A4 for maximum deflection.

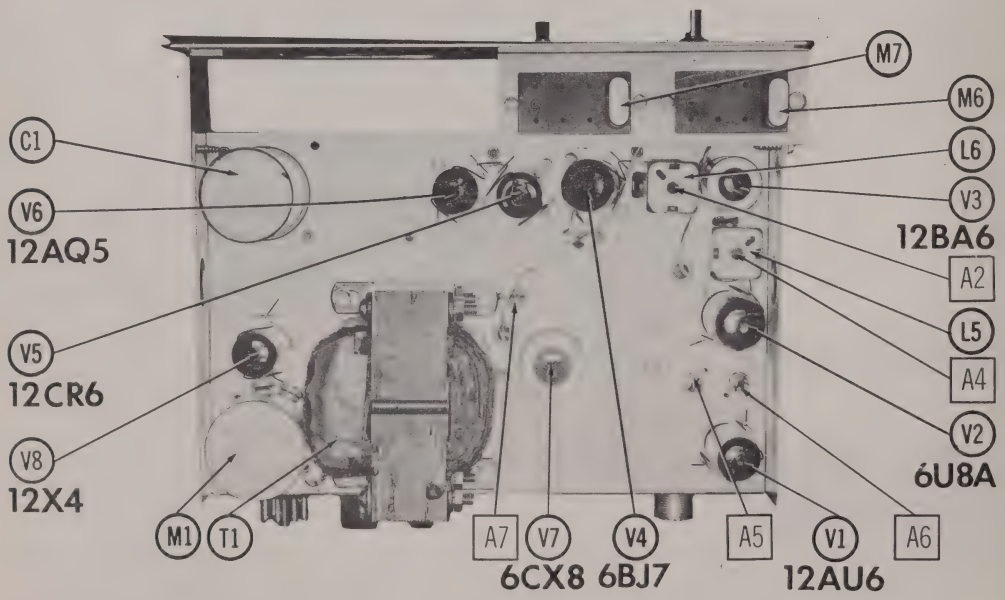
2. Connect high side of Signal Generator, set at proper channel frequency (400∿ mod.) to antenna socket. Adjust A5 and A6 for maximum deflection on VTVM.

TRANSMITTER

1. Connect 50 ohm dummy load to antenna socket.

   Connect DC probe of VTVM to point Ⓑ, common to chassis. Adjust A7 for maximum deflection.

   Adjust A8 and A9 for maximum brilliance of indicator lamp.



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆)
V1	RF Amplifier	12AU6
V2	Mixer - Osc.	6U8A (6U8) *
V3	IF Amplifier	12BA6
V4	Det. -ANL-Squelch Rect.	6BJ7
V5	AF Amp. -Speech Amp.	12CR6
V6	Receiver Output-Modulator	12AQ5
V7	Trans. Osc. -Final Amp.	6CX8
V8	Rectifier	12X4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	RAYTHEON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	300		AFH4-46	D0360	FP419.7	TMQ-4140	TVL-4631	
B	■40	300							
C	▲60	300							
D	50	25							
C2	4	150		PRS1400	BBR4-150	TT150X4	TD-4-150	TVA-1402	
C3	25	50		PRS1340	BBR25-50	TC36	TD-25-50	TVA-1306	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4A		#461-466						
B								
C5	5.1 10%	#VCM20B471M	NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050		10TCC-V50
C6	470 1000V 10%					VCM-20-471M		
C7	1 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	10 + 1mmf	Note 1	NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C15	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C21	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C22	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	330		DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C26	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C29	1000	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C30	10 + 1mmf		NPO-SI 10	TCZ-10	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C31	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C32	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C33	56 10%		NPO-SI 56	D6-560	L10Q56	CCD-560	GP456	10TS-Q56
C34	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C35	56 10%		NPO-SI 56	D6-560	L10Q56	CCD-560	GP456	10TS-Q56
C36	1000 1500V		HVD15-1000	DD30-102	HVB16D1	3CCD-102	2HV-210	30GA-D10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	4700 3000V			DD30-472		3CCD-502	3HV-247	30GA-D47
C41	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C42	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C44	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

\# Raytheon Part Number.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	RAYTHEON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	G-45	B-70-S	A47-1meg-S	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R2A	500K	½	VF-45	B-59	A47-500K-S	Q11-133	U50	Squelch
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-2	SWE-20	76-2	US-27	ANL Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	560K			
R4	56K			
R5	1meg			
R6	2200Ω			
R7	1000Ω			
R8	100Ω			Note 1
R9	270K			
R10	56K			
R11	1meg			
R12	56K			
R13	56K			
R14	1meg			
R15	100K			
R16	27K 2W			
R17	100K			

ITEM No.	RATING	IRC PART No.	WORKMAN TV PART No.	REMARKS
R18	100K			
R19	2.2meg			
R20	270K			
R21	1meg			
R22	560K			
R23	470Ω 1W			
R24	56K			
R25	2200Ω			
R26	27K 2W			
R27	270Ω			
R28	330Ω			
R29	100Ω 1W			
R30	100Ω 1W			
R31	39Ω 2W			
R32	22Ω			

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	RAYTHEON PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	RF Choke (5.6uh)	TL-70	SW-631	4609	RTC-8519	T959	① Not used in some versions.
L2	RF Pri	TL-91	TV-118	6171-A	RTC-8609	T216	
L3	RF Sec	TL-91	TV-118	6171-A	RTC-8609	T216	
L4	RF Choke (1.5uh)	TL-68 ①	BC-562	4604	RTC-8516	T856	
L5	Input IF	TL-34	BC-352	12-C1	RTC-8632	T607	
L6	Output IF	TL-35	BC-353	12-C2	RTC-8633	T608	
L7	RF Choke (5.6uh)	TL-70	SW-631	4609	RTC-8519	T959	
L8	Osc. Plate	TL-91	TV-118	6171-A	RTC-8609	T216	
L9	RF Choke (5.6uh)	TL-70	SW-631	4609	RTC-8519	T959	
L10	RF Choke (15uh)	TL-69		4624	RTC-8524	T862	
L11	Final Plate	TL-93					
L12	Ant. Loading	TL-92					
L13	Hash Choke (46uh)	TL-72		7825-8			

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	RAYTHEON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ 6A(AC)	560VCT @ .080A DC	12.6V @ 1.6A (AC)	ST-102					
	12.6VCT @ 3A(DC)								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RAYTHEON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6200Ω	3-4Ω	ST-19			24S05	S-63X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RAYTHEON PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	P4VA-NW	4A1	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	RAYTHEON PART No.	REPLACEMENT DATA
K1	ANL-Squelch Network	(2) 100mmf, 10000mmf, (2) 270K, (2) 1meg	59-4719	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				RAYTHEON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6	115∿	G-1601	6301	G1601	6301	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RAYTHEON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	7.5A 250V	AGC 7½		31207.5 (3AG 7½A 250V)	342001	AGC 7½	HKP
M3	3AG	2A 250V	AGC 2		312003 (3AG 2A 250V)	342001	AGC 2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	RAYTHEON PART No.	NOTES
M4	Switch	F-49	Channel Selector (Rotary Wafer)
M5	Switch	SW-726	Receive-Transmit (DPDT Slide Type)
M6	Crystal		Receive
M7	Crystal		Transmit

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Lens	147-10	Clear Lucite
Knob	101TB270	Channel Selector
Knob	105P-T3270	Volume, Squelch

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

SILVERTONE CHASSIS 528.54060, 070, 071, 528.59560, 850, 851, 860

SILVERTONE CHASSIS 528.54060, 070, 071, 528.59560, 850, 851, 860

MODEL 1073

SILVERTONE CHASSIS 528.54060, 070, 071, 528.59560, 850, 851, 860

TRADE NAME	Silvertone Models 1069, 1070, 1071, 1079, 1080, 1081 (Tuner Ch. 528.54060, Amp. Ch. 528.59850 or 528.59851) 1073, 1074, 1075 (Tuner Ch. 528.54070 or 528.54071, Amp. Ch. 528.59560) 1280, 1281, 1282, 1283 (Amp. Ch. 528.59860)
SUPPLIER	Sear, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	AC Operated 9 Tube FM-AM Tuner, 10 Transistor Stereo Amplifier and 4 Speed Automatic Record Changer (Model 1280 Series do not use FM-AM Tuner)
POWER SUPPLY	110—120 Volts AC, 60 Cycles RATING Tuner: 39 Watts, .25 Amp. @117 Volts AC Amp: 17 Watts, .2 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	540 — 1600KC FREQ. MOD. 88—108MC

FOR SERVICE INFORMATION ON RECORD CHANGER 528.57350, 528.57351, 528.57370 OR 528.57371 SEE PHOTOFACT SET 515 FOLDER 16

SET 535 FOLDER 13

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KN553

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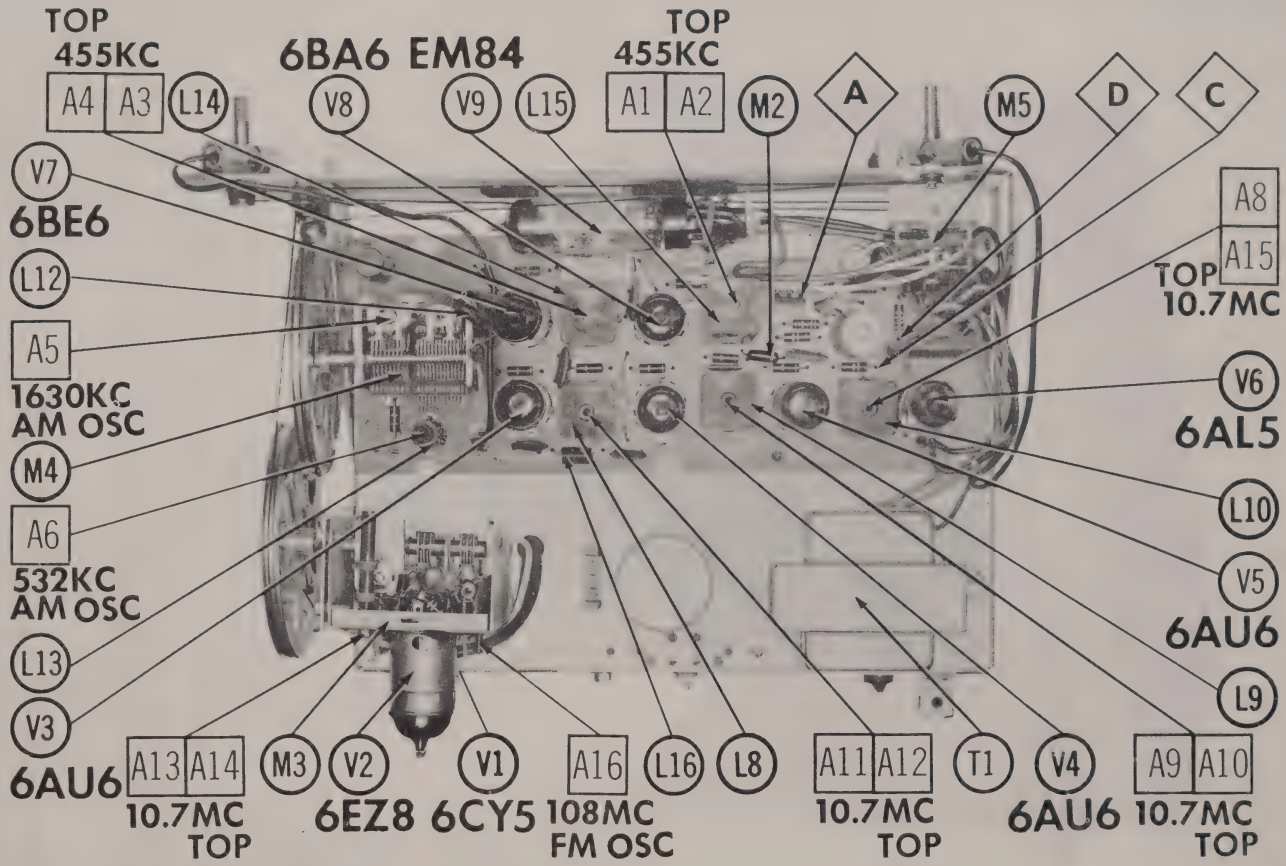


TUNER CHASSIS TOP VIEW-ALIGNMENT, INDUCTOR, TUBE & MISC. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:
A1 thru A4, A13, A14. . . GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5, A7. . . . . GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6, A8 thru A12, A15. . GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A16. . . . . GENERAL CEMENT #8721, 8722
WALSCO #2519

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (Unmod.)	(AM) Tuning gang fully open.	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1630KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	532KC	Tuning gang fully closed.	"	A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum deflection. Repeat Steps 2, 3 and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .001mfd to point (B). Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (C). Common to chassis.	A8, A9, A10, A11, A12, A13, A14	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (D). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .001mfd to point (B). Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (C). Low side to chassis.	A8, A9, A10, A11, A12, A13, A14	Disconnect stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
6.	"	"	"	Vert. amp. to point (D). Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 120Ω in each lead.	108MC (Unmod.)	(FM) Tuning gang fully open.	DC probe to point (C). Common to chassis.	A16	Adjust for maximum deflection.
8.	"	87.5MC	Tuning gang fully closed.	"	L6	Adjust for maximum deflection. Repeat Steps 7 and 8.

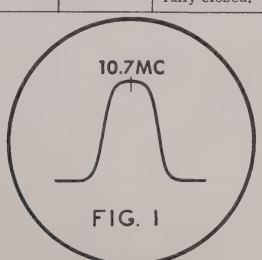


FIG. 1

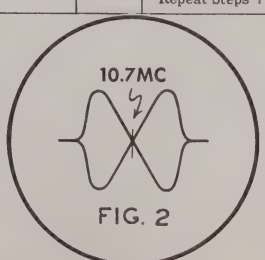


FIG. 2

TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6CY5
V2	FM Mixer-Osc. -AFC	6EZ8
V3	1st FM IF Amplifier	6AU6
V4	2nd FM IF Amplifier	6AU6
V5	FM Limiter	6AU6
V6	Ratio Detector	6AL5
V7	AM Converter	6BE6
V8	AM IF Amplifier	6BA6
V9	Tuning Indicator	EM84/6FG6

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	150	18-57-3	AFH4-35	D0320	FP311.68	TMT-3304	TVL-3583	
B	■60	150							
C	●60	150							
C2	8	50	18-98-5	PRS1405	BBR8-150	TC41	TD-8-150	TVA-1405	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	180	#277-181						
C4	1.5	#274-159						
C5	15		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C6	1000		EF-001	MFT-1000		CCF-102	CT280A	
C7	8	#22-809	NPO-DI 8.2					
C8	1000		EF-001	MFT-1000		CCF-102	CT280A	
C9	33	#275-330						
C10		#1620-12						
C11	1.5	#274-159						
C12	330	(500) †	DI-330	DD-330	L10T33	CCD-331	B-333	10TS-T33
C13	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TS-Q33
C14	1000		EF-001	MFT-1000		CCF-102	CT280A	
C15	15		DD-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C16	1000		EF-001	MFT-1000		CCF-102	CT280A	
C17	1000		EF-001	MFT-1000		CCF-102	CT280A	
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	1.5	#274-159						
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	.22 100V		P288N-22		CUB2P22	DP-3-224	GEM-2022	2TM-D22
C24	.047 200V		P215IN-047	DD-503	BC2S47J	4DP-3-473	ACE6147	2SE-S47
C25	4.7 10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C26		#19-143-0						
C27	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C28	.047 200V		P215IN-047	DD-503	BC2S47J	4DP-3-473	ACE6147	2SE-S47
C29	20000	Note 1	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C30	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	20000	(10000) †	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C32	20000	Note 1	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C33	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C34	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

Silvertone Part Number.
† Alternate Value.
Note 1. Not used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R1	330K			
R2	56K			
R3	330K			
R4	3300Ω			
R5	470Ω			
R6	8200Ω			
R7	22meg			
R8	100K			
R9	470K			
R10	1000Ω			
R11	82Ω			
R12	1000Ω			
R13	82Ω			
R14	3.3meg			
R15	3.3meg			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R16	10K			
R17	82Ω			
R18	10meg			
R19	270K			
R20	220K			
R21	2.2meg			
R22	18K			
R23	560Ω			
R24	82Ω			
R25	2.2meg			
R26	270K			
R27	220K			
R28	560K			
R29	390Ω 1W			
R30	390Ω 1W			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	FM Limiter Grid	100mmf, 47K	13-3-2	
K2	Ratio Detector Network	(3) 300mmf, 1000mmf, 68Ω, 1000Ω, 1500Ω (2) 6800Ω, 68K	13-35-3	Aerovox PA-694 Centralab PC-342 Sprague C-12
K3	AM Diode Filter	(2) 100mmf, 47K	13-2-2	Aerovox PA-97 Centralab PC-50 Sprague D-1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	FM Ant.	3191-1					① Alternate Part # 3193-5
L2	RF Choke	301-15					
L3	RF Choke	300-7					
L4	RF Choke	301-11					
L5	RF Choke	3190-24					
L6	FM Osc.	3197-2					
L7	1st FM IF	3193-1 ①					
L8	2nd FM IF	10-117-2	FM-256	1463-PC	RTC-9046	T654	
L9	3rd FM IF	10-118-2	FM-256	1463-PC	RTC-9046	T654	
L10	Ratio Detector	10-29-0	FM-257	1465-PC	RTC-9053	T659	
L11	Loopstick	82-151-0	BC-418	705-A		T532	
L12	RF Choke (2.2uh)	10-140-1	BC-563	4606	RTC-8517	T857	
L13	AM Osc.	10-55-4					
L14	1st AM IF	10-116-2	BC-356	13-PC1	RTC-8641	T614	
L15	2nd AM IF	10-116-2	BC-357	13-PC2	RTC-8642	T615	
L16	RF Choke	10-28-0					

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V@ .25A	120V@ .050A DC	6.3V@ 3A	C80-47-0E ①					① Alternate Part # 80-47-0

TUNER PARTS LIST AND DESCRIPTIONS (Continued)

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	SILVERTONE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.050A	86-22-3 *	1N1763 ♦	65*	SR200 ♦	* Selenium ♦ Silicon

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N541			1N295	1N295	AM Detector (Pigtail)

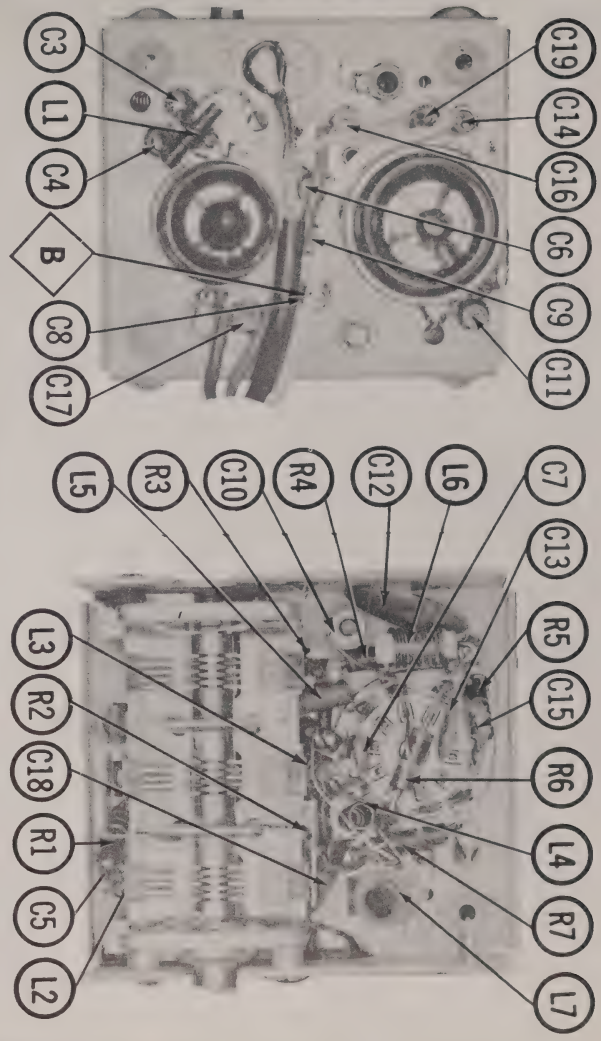
MISCELLANEOUS

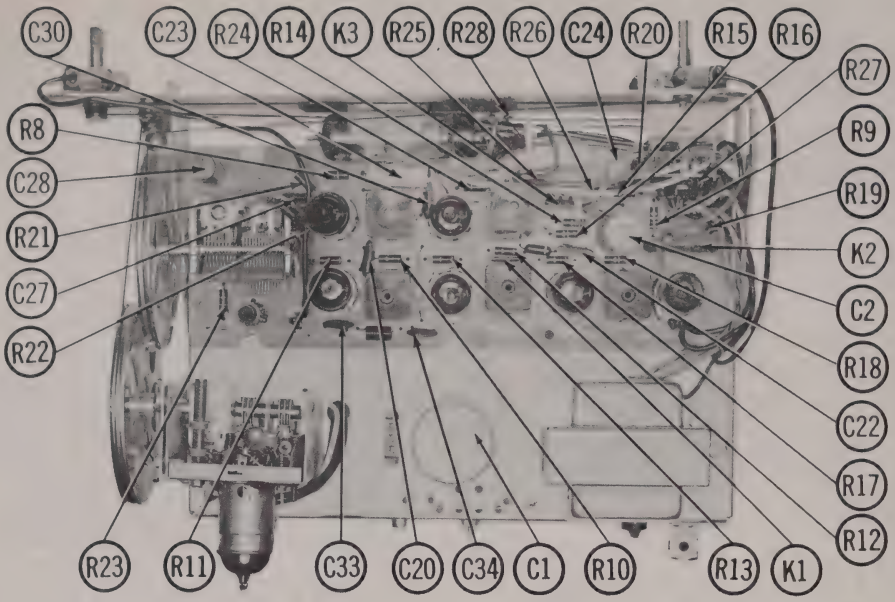
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	FM Tuner	95-230-0	Complete, Includes Tuning Cap. #3288-501
M4	Tuning Cap.	19-84-2	AM, 2 Gang
M5	Switch	69-340-0	Function Selector (Rotary Type)
	Printed Board	25-37-1	Less Tubes

WIRING DATA

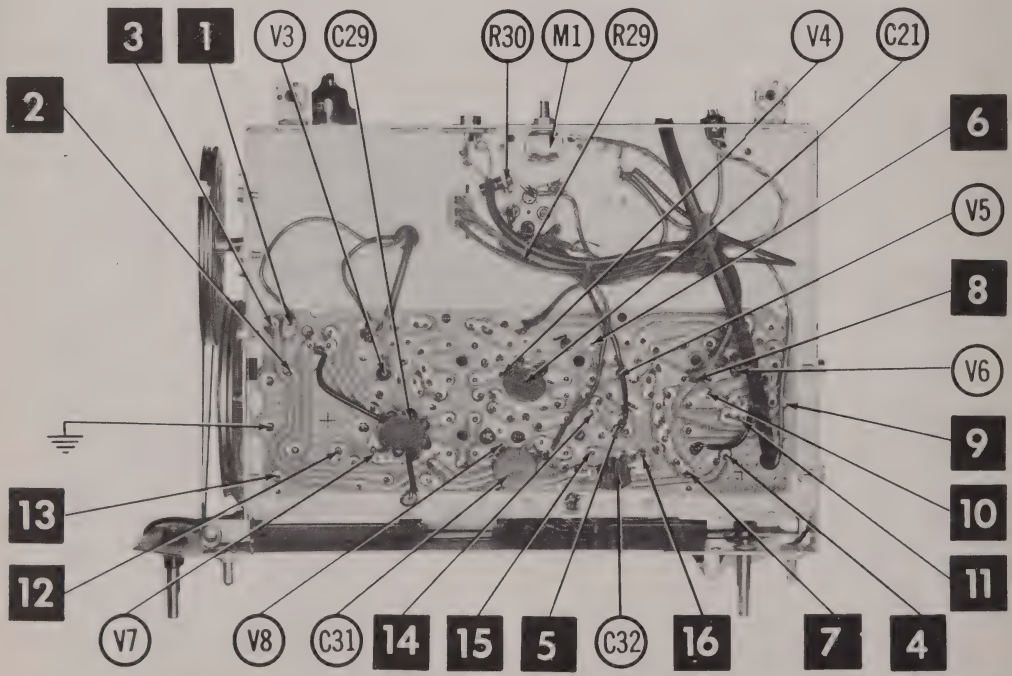
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type) ..... Use BELDEN No. 8874

FM RF SUBCHASSIS





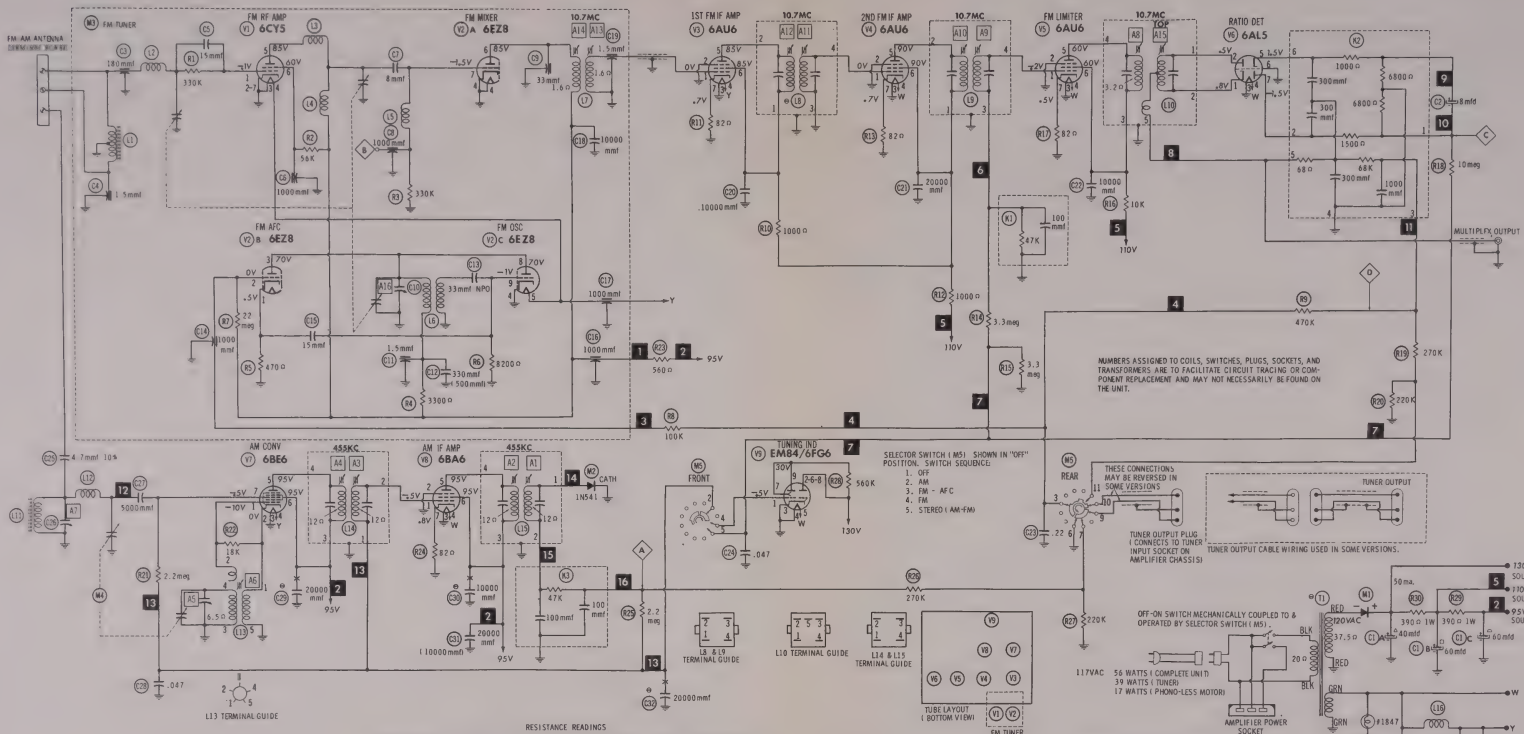
TUNER CHASSIS TOP VIEW-CAPACITOR & RESISTOR IDENT.



A Howard W. Sams CIRCUITRACE® Photo

TUNER PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CY5	330K	0Ω	0Ω	.1Ω	†1300Ω	156K	0Ω		
V2	6EZ8	470Ω	1meg ■100K	†4600Ω	0Ω	.1Ω	†1300Ω	330K	†4600Ω	8700Ω
V3	6AU6	1.6Ω	0Ω	.1Ω	0Ω	†2400Ω	†2400Ω	82Ω		
V4	6AU6	.1Ω	0Ω	.1Ω	0Ω	†1400Ω	†1400Ω	82Ω		
V5	6AU6	47K	0Ω	.1Ω	0Ω	†10K	†10K	82Ω		
V6	6AL5	550K	550K	.1Ω	0Ω	7800Ω	0Ω	8000Ω		
V7	6BE6	18K	.1Ω	.1Ω	0Ω	†780Ω	†780Ω	4.4meg		
V8	6BA6	2.2meg	0Ω	.1Ω	0Ω	†780Ω	†780Ω	82Ω		
V9	EM84 6FG6	2.2meg	NC	0Ω	0Ω	.1Ω	0Ω	†560K	NC	†560K

ALL MEASUREMENTS MADE IN "STEREO AM-FM" POSITION.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM OUTPUT OF M1.
■ MEASURED WITH "AFC" OFF.
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®
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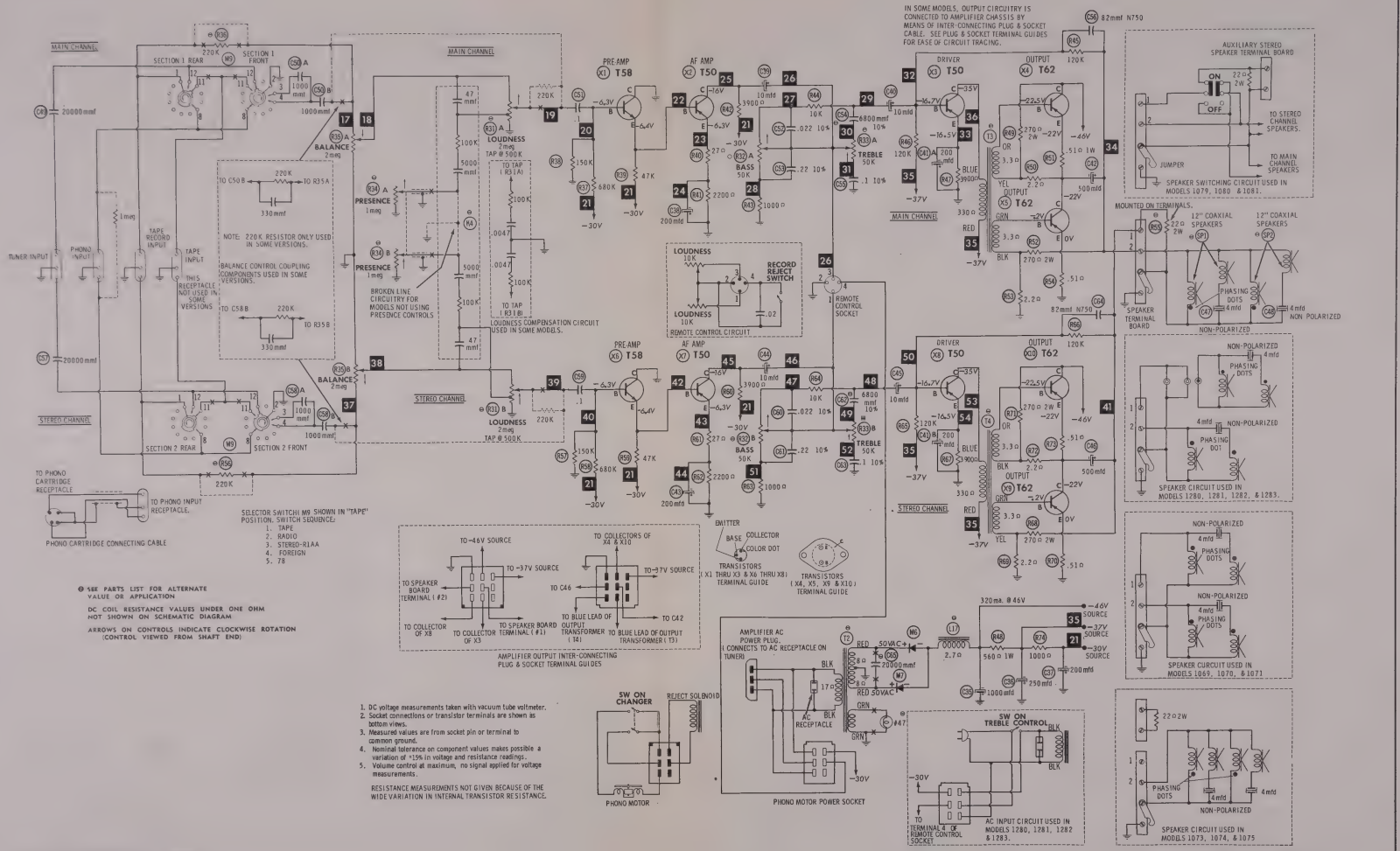
SILVERTONE CHASSIS 528.54060, 070, 071, 528.59560, 850, 851, 860

TUNER SCHEMATIC


MAIN CHANNEL
STEREO CHANNEL
SECTION 1 REAR
SECTION 1 FRONT
SECTION 2 REAR
SECTION 2 FRONT
TUNER INPUT
PHONO INPUT
TAPE RECORD INPUT
TAPE INPUT
THIS RECEPTACLE NOT USED IN SOME VERSIONS
BALANCE 2 meg
PRESENCE 1 meg
LOUDNESS 2 meg TAP @ 500K
TO TAP (R31A)
TO TAP (R31B)
LOUDNESS COMPENSATION CIRCUIT USED IN SOME MODELS.
BROKEN LINE CIRCUITRY FOR MODELS NOT USING PRESENCE CONTROLS
NOTE: 220K RESISTOR ONLY USED IN SOME VERSIONS.
BALANCE CONTROL COUPLING COMPONENTS USED IN SOME VERSIONS.
TO PHONO CARTRIDGE RECEPTACLE
TO PHONO INPUT RECEPTACLE.
PHONO CARTRIDGE CONNECTING CABLE
SELECTOR SWITCH M9 SHOWN IN "TAPE" POSITION. SWITCH SEQUENCE:
1. TAPE
2. RADIO
3. STEREO-RIAA
4. FOREIGN
5. 78
PRE AMP (X1) T58
AF AMP (X2) T50
PRE AMP (X6) T58
AF AMP (X7) T50
LOUDNESS 10K
RECORD REJECT SWITCH
REMOTE CONTROL SOCKET
REMOTE CONTROL CIRCUIT
BASS 50K
TREBLE 50K
IN SOME MODELS, OUTPUT CIRCUITRY IS CONNECTED TO AMPLIFIER CHASSIS BY MEANS OF INTER-CONNECTING PLUG & SOCKET CABLE. SEE PLUG & SOCKET TERMINAL GUIDES FOR EASE OF CIRCUIT TRACING.
DRIVER (X3) T50
OUTPUT (X4) T62
OUTPUT (X5) T62
DRIVER (X8) T50
OUTPUT (X9) T62
OUTPUT (X10) T62
MAIN CHANNEL
STEREO CHANNEL
AUXILIARY STEREO SPEAKER TERMINAL BOARD
TO STEREO CHANNEL SPEAKERS.
TO MAIN CHANNEL SPEAKERS
JUMPER
SPEAKER SWITCHING CIRCUIT USED IN MODELS 1079, 1080 &1081.
MOUNTED ON TERMINALS.
12" COAXIAL SPEAKERS
SPEAKER TERMINAL BOARD
NON-POLARIZED
PHASING DOTS
SPEAKER CIRCUIT USED IN MODELS 1280, 1281, 1282, & 1283.
SPEAKER CIRCUIT USED IN MODELS 1069, 1070, & 1071
SPEAKER CIRCUIT USED IN MODELS 1073, 1074, & 1075
TRANSISTORS (X1 THRU X3 & X6 THRU X8) TERMINAL GUIDE
TRANSISTORS (X4, X5, X9 & X10) TERMINAL GUIDE
EMITTER
BASE
COLLECTOR
COLOR DOT
TO -46V SOURCE
TO -37V SOURCE
TO COLLECTORS OF X4 & X10
TO SPEAKER BOARD TERMINAL (#2)
TO COLLECTOR OF X8
TO COLLECTOR OF X3
TO SPEAKER BOARD TERMINAL (#1)
TO C46
TO C42
TO BLUE LEAD OF OUTPUT TRANSFORMER (T4)
TO BLUE LEAD OF OUTPUT TRANSFORMER (T3)
AMPLIFIER OUTPUT INTER-CONNECTING PLUG & SOCKET TERMINAL GUIDES
AMPLIFIER AC POWER PLUG. (CONNECTS TO AC RECEPTACLE ON TUNER)
AC RECEPTACLE
RED 50VAC
BLK
GRN
320ma. @ 46V
-46V SOURCE
-37V SOURCE
-30V SOURCE
PHONO MOTOR POWER SOCKET
SW ON CHANGER
REJECT SOLENOID
PHONO MOTOR
SW ON TREBLE CONTROL
TO TERMINAL 4 OF REMOTE CONTROL SOCKET
AC INPUT CIRCUIT USED IN MODELS 1280, 1281, 1282 & 1283.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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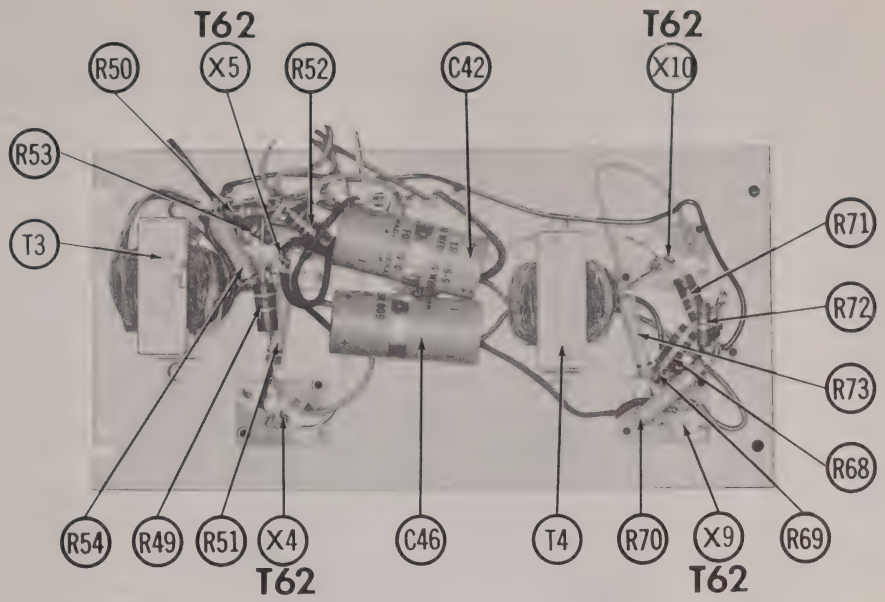
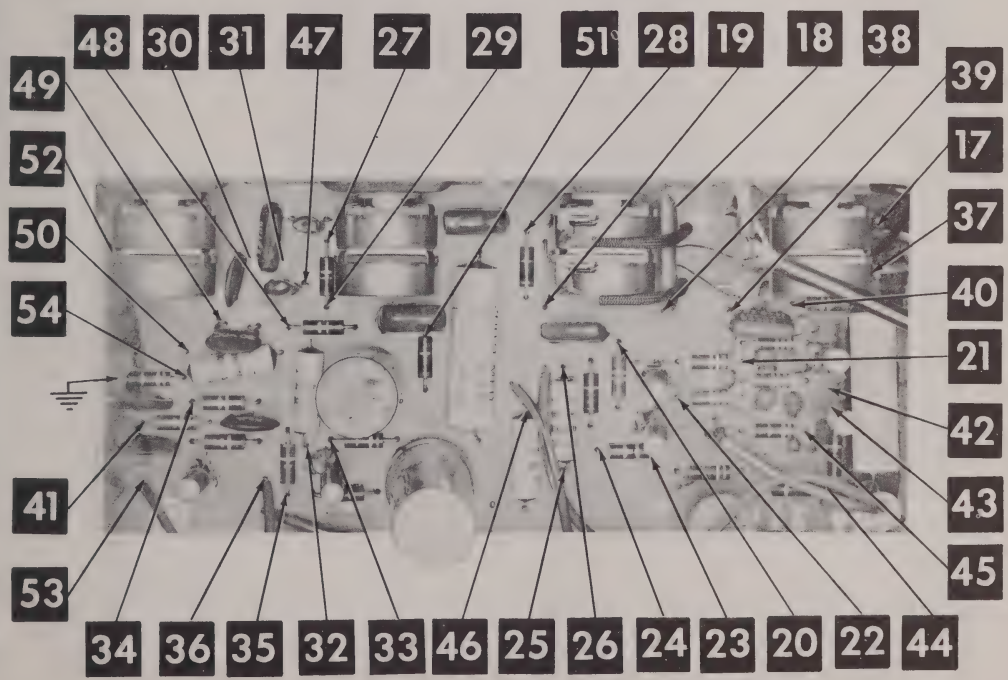
AMP SCHEMATIC

SILVERTONE CHASSIS 528.54060, 070, 071, 528.59560, 850, 851, 860

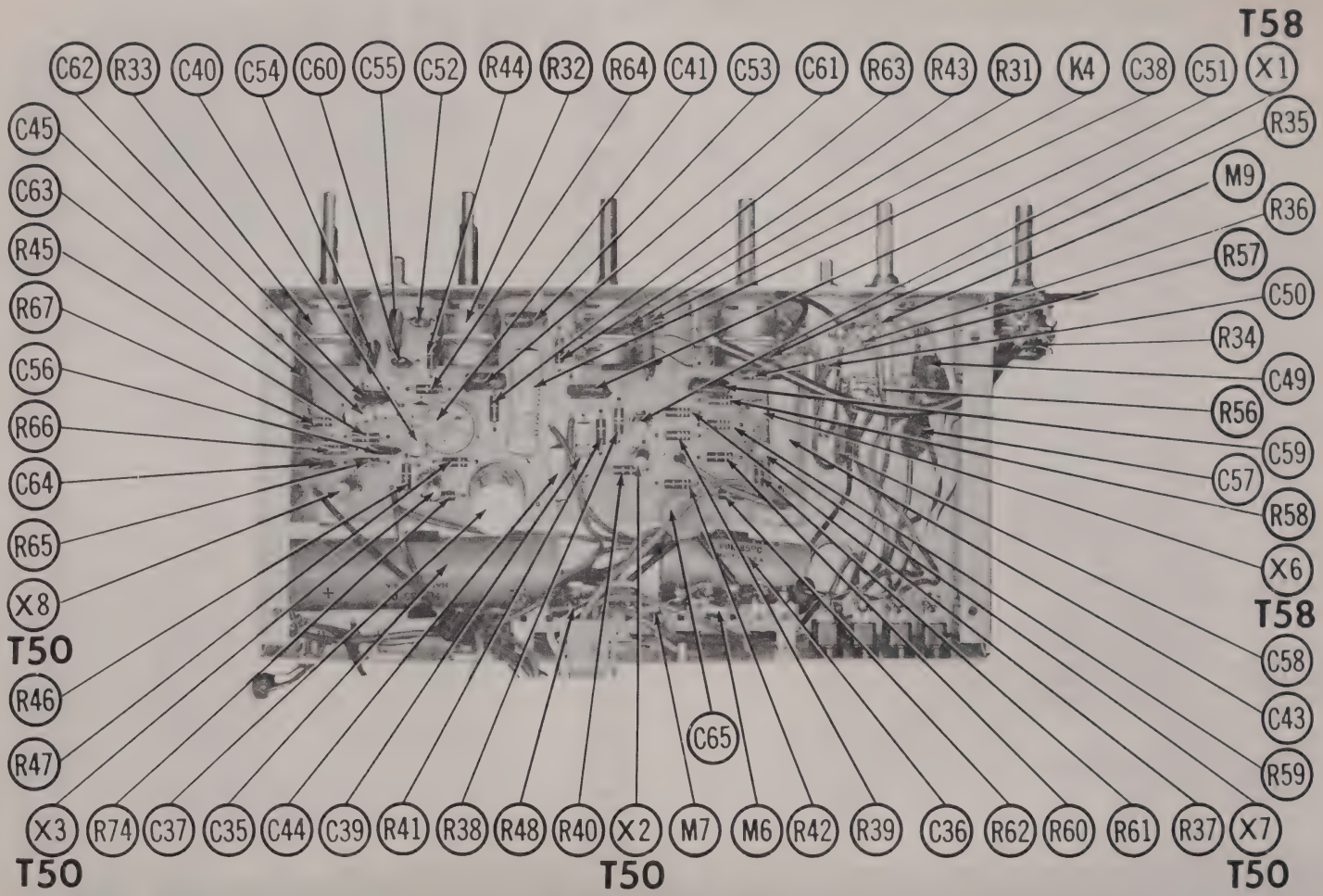


OUTPUT CHASSIS



A Howard W. Sams CIRCUITRACE® Photo

AMP PRINTED BOARD



AMP CHASSIS-TOP VIEW

AMP PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X1	T58	Main Channel Preamp.				NPN
X2	T50	Main Channel AF Amp.				PNP
X3	T50	Main Channel Driver				PNP
X4	T62	Main Channel Output				PNP
X5	T62	Main Channel Output				NPN
X6	T58	Stereo Channel Preamp.				PNP
X7	T50	Stereo Channel AF Amp.				PNP
X8	T50	Stereo Channel Driver				PNP
X9	T62	Stereo Channel Output				PNP
X10	T62	Stereo Channel Output				PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C35	1000	50	18-125-5	AFH1-14					
C36	250	50	18-124-5	PRS1380	BR2505	TC50025	TD-250-50	TVA-1312	
C37	200	30	18-119-5	PRS1380					
C38	200	10	18-123-5	SRE12V200	BR20015	TC1502	TD-200-150	TVA-1423	
C39	10	15	18-122-5	PTT-25010	NLW10-15	TT15X10	MLV10-15	TE-1155	
C40	10	15	18-122-5	PTT-25010	NLW10-15	TT15X10	MLV10-15	TE-1155	
C41A	200	15	18-127-5		BR2015	TC1502	TD-200-150	TVA-1423	
B	200	15			BR2015	TC1502	TD-200-150	TVA-1423	
C42	500	25	18-126-5	PRS1290	BR5002	TC2505	TD-500-25	TVA-1209	
C43	200	10	18-123-5	SRE12V200	BR20015	TC1502	TD-200-150	TVA-1423	
C44	10	15	18-122-5	PTT-25010	NLW10-15	TT15X10	MLV10-15	TE-1155	
C45	10	15	18-122-5	PTT-25010	NLW10-15	TT15X10	MLV10-15	TE-1155	
C46	500	25	18-126-5	PRS1290	BR5002	TC2505	TD-500-25	TVA-1209	
C47	4	50NP	18-129-5	PRS7405	BBR4-150	TCN504		TVANS-1302.5*	
C48	4	50NP	18-129-5	PRS6405	BBR4-150	TCN504		TVANS-1302.5*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C49	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C50A	1000		BPD-2X001	DD3-102	BYD6DD1	CCD-102	B2X210	5HK-2D10
B	1000					CCD-102		
C51	.1 50V		P288N-1	DF-104	CUB2P1	IDP-2-104	GEM-201	2TM-P10
C52	.022 50V 10%		V84C2S22-10%		PM4S22	IDP-1-223		2TM-S22
C53	.22 50V 10%		V84C2P22-10%		PM2P22	IDP-3-224	GEM-2022	2TM-P22
C54	6800 10%	Note 1	DI-6800		PM6D68	CCD-682		10TS-D68
C55	.1 50V 10%		V84C2P1-10%		PM2P1	IDP-2-104	GEM-201	2TM-P10
C56	82 N750			TCN-82	C10Q82U	CCTN-820	CN7-482	10TCU-Q82
C57	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C58A	1000		BPD-2X001	DD3-102	BYD6DD1	CCD-102	B2X210	5HK-2D10
B	1000					CCD-102		
C59	.1 50V		P288N-1	DF-104	CUB2P1	IDP-2-104	GEM-201	2TM-P10
C60	.022 50V 10%		V84C2S22-10%		PM4S22	IDP-1-223		2TM-S22
C61	.22 50V 10%		V84C2P22-10%		PM2P22	IDP-3-224	GEM-2022	2TM-P22
C62	6800 10%	Note 1	DI-6800		PM6D68	CCD-682		10TS-D68
C63	.1 50V 10%		V84C2P1-10%		PMP2D1	IDP-2-104	GEM-201	2TM-P10
C64	82 N750			TCN-82	C10U82U	CCTN-820	CN7-482	10TCU-Q82
C65	20000	Note 2	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20

Note 1. Chassis 528.59851 use 3300mmf in this application.
Note 2. Not used in some versions.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R31A	2meg	1/2	24-457 ①					Loudness, Main Channel
	500K Tap							Loudness, Stereo Channel
B	2meg	1/2						
	500K Tap							Bass, Main Channel
R32A	50K	1	24-458 ②					Bass, Stereo Channel
B	50K							Treble, Main Channel
R33A	50K	1	24-458 ③					Treble, Stereo Channel
B	50K							Presence, Main Channel
R34A	1meg	1	24-443 ④					Presence, Stereo Channel
B	1meg							Balance, Main Channel
R35A	2meg	1	24-446					Balance, Stereo Channel
B	2meg							

① Chassis 528.59850, 528.59851, 528.59860 use Part #24-445.
② Chassis 528.59850, 528.59851, 528.59860 use Part #24-447.
③ Chassis 528.59850, 528.59851 use Part #24-447.
Chassis 528.59860 used Part #24-454.
④ Not used in Chassis 528.59850, 528.59851, 528.59860.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R36	220K			Note 1
R37	680K			
R38	150K			
R39	47K			
R40	27Ω			
R41	2200Ω			
R42	3900Ω			
R43	1000Ω			
R44	10K			
R45	120K			
R46	120K			
R47	3900Ω			
R48	560Ω 1W			
R49	270Ω 2W			
R50	2.2Ω			
R51	0.51Ω 1W			
R52	270Ω 2W			
R53	2.2Ω			
R54	0.51Ω			
R55	22Ω 2W			Note 2

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R56	220K			Note 1
R57	150K			
R58	680K			
R59	47K			
R60	3900Ω			
R61	27Ω			
R62	2200Ω			
R63	1000Ω			
R64	10K			
R65	120K			
R66	120K			
R67	3900Ω			
R68	270Ω 2W			
R69	2.2Ω			
R70	0.51Ω			
R71	270Ω 2W			
R72	2.2Ω			
R73	0.51Ω			
R74	1000Ω			

Note 1. Not used in some versions.
Note 2. Not used in Chassis 528.59850, 528.59860.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K4	Loudness Comp.	(2) 47mmf, (2) 5000mmf, (2) 100K	13-46-3 (Note 1)	

Note 1. Part #13-44-3 used in Chassis 528.59850, 528.59860
Part #1341-3 used in Chassis 528.59851

AMP PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	RATINGS: DC RES.	RATINGS: INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA: SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L17	.320A	2.7Ω	.1 HY	B80-12-6A ①					① Alternate Part # 80-12-6

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	REPLACEMENT DATA: SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	117V @ .2A	100VCT @ .320A DC	5.5V @ .3A	C80-49-0C①					① Alternate Part # 80-49-0

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO: PRI.	TURNS RATIO: SEC.	REPLACEMENT DATA: SILVERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	7	1	B80-131-1A①					① Alternate Part #80-131-1
		SEC. 2						
		1						
T4	7	SEC. 1	B80-131-1A①					
		1						
		SEC. 2						
		1						

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	12"	PM	14-16Ω	33-476-4C *	12A6COZ16 *	* Coaxial Speaker Models 1073, 1074, 1075
SP2	12"	PM	14-16Ω	33-476-4C *	12A6COZ16 *	♦ Models 1280, 1281, 1282, 1283
	12"	PM		33-468-4 ♦		† Models 1069, 1070, 1071, 1079, 1080, 1081
	8"	PM		33-470-4 ♦		‡ Used in Models 1069, 1070, 1071 with Amp. Chassis 528.59850
	4"	PM		33-469-4 ♦		
	12"	PM	14-16Ω	33-472-4 †		
	10"	PM	14-16Ω	33-473-4 ‡		
	4"	PM	14-16Ω	33-465-4 †		

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: SILVERTONE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M6	.320A	86-26-3	1N1763	40H	SR500	Silicon
M7	.320A	86-26-3	1N1763	40H	SR500	Silicon

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	SILVERTONE PART No.: CARTRIDGE	SILVERTONE PART No.: NEEDLE*	ASTATIC PART No.: CARTRIDGE	ASTATIC PART No.: NEEDLE*	ELECTRO-VOICE PART No.: CARTRIDGE	ELECTRO-VOICE PART No.: NEEDLE*	SONOTONE PART No.: CARTRIDGE	SONOTONE PART No.: NEEDLE*	NOTES
M8	33-314-0	83-1308 *	13TBX	Not Req.	26SD	Not Req.	8TA4-SD	N-8TA-SD *	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M9	Switch	69-337-0	Selector (Rotary Type)
	Switch	69-359-0	Stereo Speaker (Chassis 528.59851)
	Printed Board	25-38-1	Less All Components

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Pointer	52-215-1	
Dial Glass	48-171-1	
Knob	52-1445-0	AM Tuning, Loudness, Balance, Presence, Function, Models 1073, 1074, 1075
Knob	52-1445-0	AM Tuning, Loudness, Bass, Treble, Balance, Amp. Function, Models 1069, 1070, 1071, 1079, 1080, 1081
Knob	52-1316-0	Outer, Bass, Treble, FM Tuning, Models 1073, 1074, 1075
Knob	52-1265-0	Inner, Bass, Treble, Tuner Function, Models 1073, 1074, 1075
Knob	52-1265-0	FM Tuning, Models 1069, 1070, 1071, 1079, 1080, 1081
Knob	52-1316-0	Tuner Function, Models 1069, 1070, 1071, 1079, 1080, 1081
Knob	52-1386-0	Loudness, Bass, Balance, Function, Models 1280, 1281, 1282, 1283
Knob	52-1267-0	Treble, Models 1280, 1281, 1282, 1283
Knob	52-1242-0	On-Off, Models 1280, 1281, 1282, 1283
Cabinet	42-150-3	Mahogany, Model 1073
Cabinet	42-151-3	Limed Oak, Model 1074
Cabinet	42-152-3	Fruitwood, Model 1075
Cabinet	42-147-3	Mahogany, Model 1069
Cabinet	42-148-3	Oak, Model 1070
Cabinet	42-149-3	Walnut, Model 1071
Cabinet	42-159-3	Mahogany, Model 1079
Cabinet	42-160-3	Oak, Model 1080
Cabinet	42-161-3	Walnut, Model 1081
Cabinet	42-132-2	Mahogany, Model 1280
Cabinet	42-133-2	Limed Oak, Model 1281
Cabinet	42-134-2	Fruitwood, Model 1282
Cabinet	42-138-2	Walnut, Model 1283
Cabinet	42-78-4	Speaker, Mahogany, Model 1069
Cabinet	42-79-4	Speaker, Oak, Model 1070
Cabinet	42-80-4	Speaker, Walnut, Model 1071
Cabinet	42-75-4	Speaker, Mahogany, Model 1280
Cabinet	42-76-4	Speaker, Limed Oak, Model 1281
Cabinet	42-77-4	Speaker, Fruitwood, Model 1282
Cabinet	42-85-4	Speaker, Walnut, Model 1283
Leg	49-683	Cabinet, Model 1073
Leg	49-684	Cabinet, Model 1074
Leg	49-685	Cabinet, Model 1075
Leg	49-665	Cabinet, Model 1069, 1079
Leg	49-666	Cabinet, Model 1070, 1080
Leg	49-667	Cabinet, Model 1071, 1081
Leg	49-657	Cabinet, Model 1280
Leg	49-658	Cabinet, Model 1281
Leg	49-672	Cabinet, Model 1282
Leg	49-700	Cabinet, Model 1283
Leg	49-760	Speaker Cabinet, Model 1069
Leg	49-762	Speaker Cabinet, Model 1070
Leg	49-761	Speaker Cabinet, Model 1071
Leg	49-755	Speaker Cabinet, Model 1280
Leg	49-756	Speaker Cabinet, Model 1281
Leg	49-757	Speaker Cabinet, Model 1282
Leg	49-758	Speaker Cabinet, Model 1283
Handle	49-538	Drop Front, Model 1073, 1075
Handle	49-696	Drop Front, Model 1074

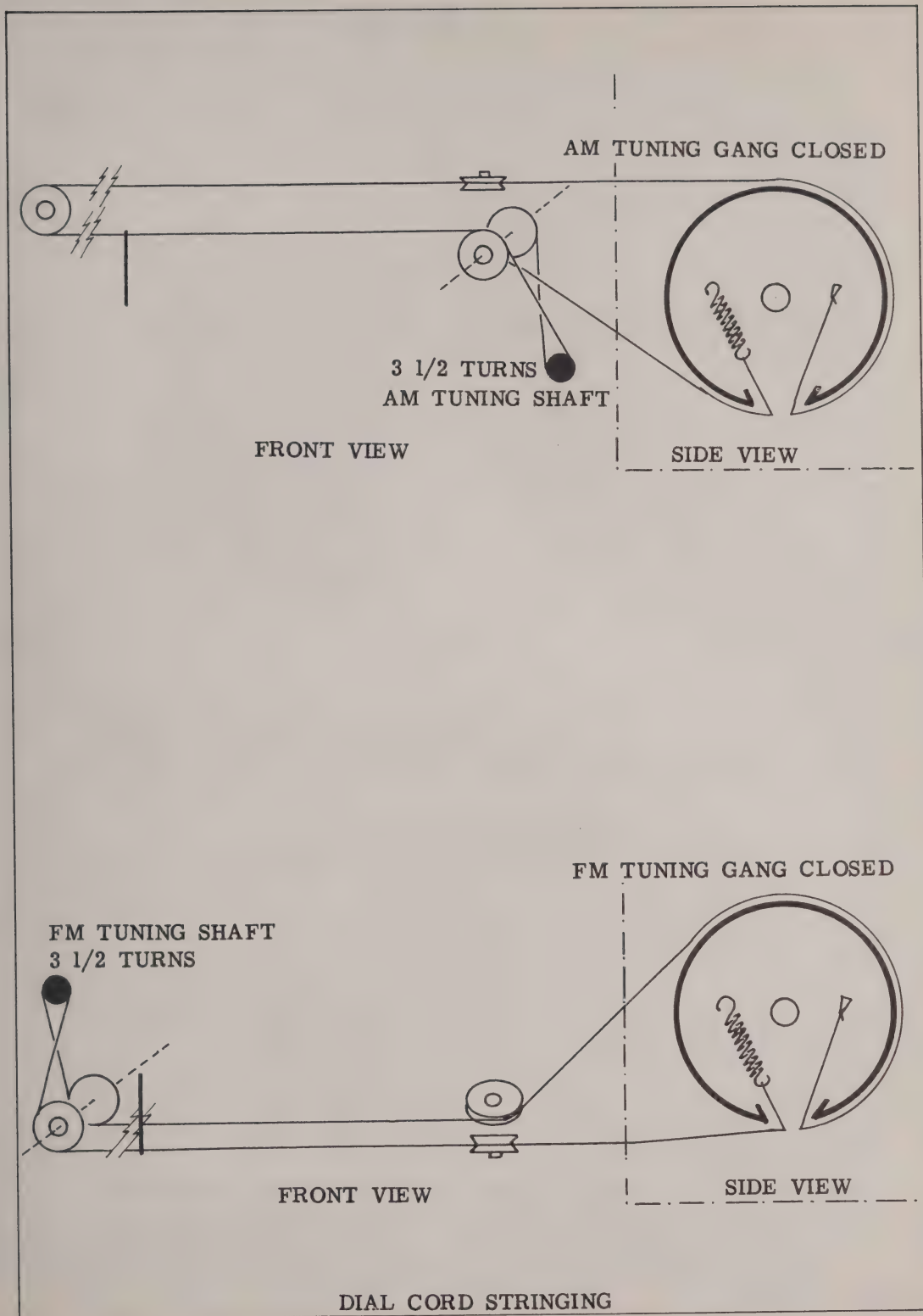
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

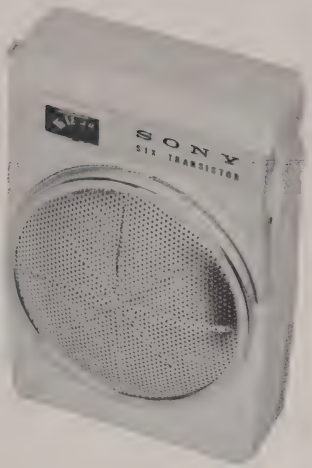


DIAL CORD STRINGING

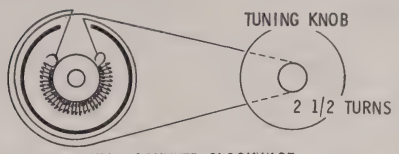
PHOTOFACT® Folder with CIRCUITRACE®

SONY MODEL TR-620

SONY MODEL TR-620



DRIVE CORD STRINGING



TUNING GANG FULLY COUNTER CLOCKWISE

FRONT VIEW

SONY MODEL TR-620

TRADE NAME	Sony Model TR-620		
IMPORTER	Sony Corp., of America, 514 Broadway, New York 12, N. Y.		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	9 Volts DC	RATING	6MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	535 – 1605KC		15MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3.... GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
A4, A7..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A5..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5, A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2 thru 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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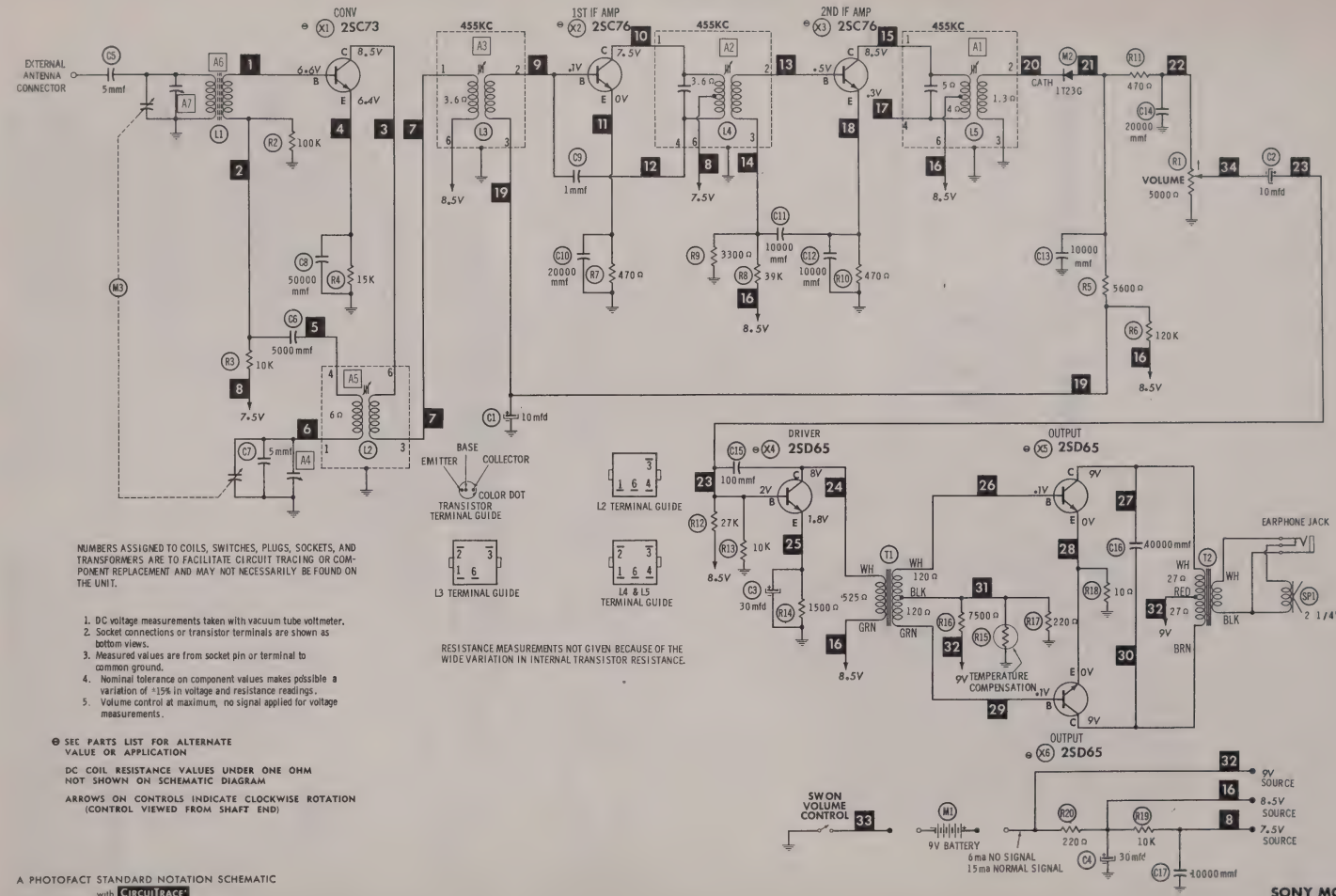
SET 535 FOLDER 14



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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SONY MODEL TR-620

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2SC73 *	Converter				NPN
X2	2SC76 †	1st IF Amplifier				NPN
X3	2SC76 †	2nd IF Amplifier				NPN
X4	2SD65 ♦	Driver				NPN
X5	2SD65 ♦	Output				NPN
X6	2SD65 ♦	Output				NPN

* Alternate Type 2T73
† Alternate Type 2T76
♦ Alternate Type 2T65

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SONY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	10	3	1-121-112			TT3X10			
C2	10	3	1-121-112			TT3X10			
C3	30	3	1-121-113						
C4	30	10	1-121-110						

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-4R7	CNO-547	10TCC-V50
C6	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C7	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-4R7	CNO-547	10TCC-V50
C8	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C9	1		NPO-DI 1.0	TCZ-1			CNO-510	10TCC-V10
C10	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C12	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C13	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C14	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C15	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C16	40000	#1-101-023						
C17	10000		C80V103AM	DDM-103	H-05S1		TA-110	TG-S10

Sony Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SONY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/10	1-221-241	B16-214				Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R2	100K			
R3	10K			
R4	15K			
R5	5600Ω			
R6	120K			
R7	470Ω			
R8	39K			
R9	3300Ω			
R10	470Ω			
R11	470Ω			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R12	27K			
R13	10K			
R14	1500Ω			
R15	Temp. Comp.			Pt. #S-250
R16	7500Ω			
R17	220Ω			
R18	10Ω			
R19	10K			
R20	220Ω			

PRINTED BOARD

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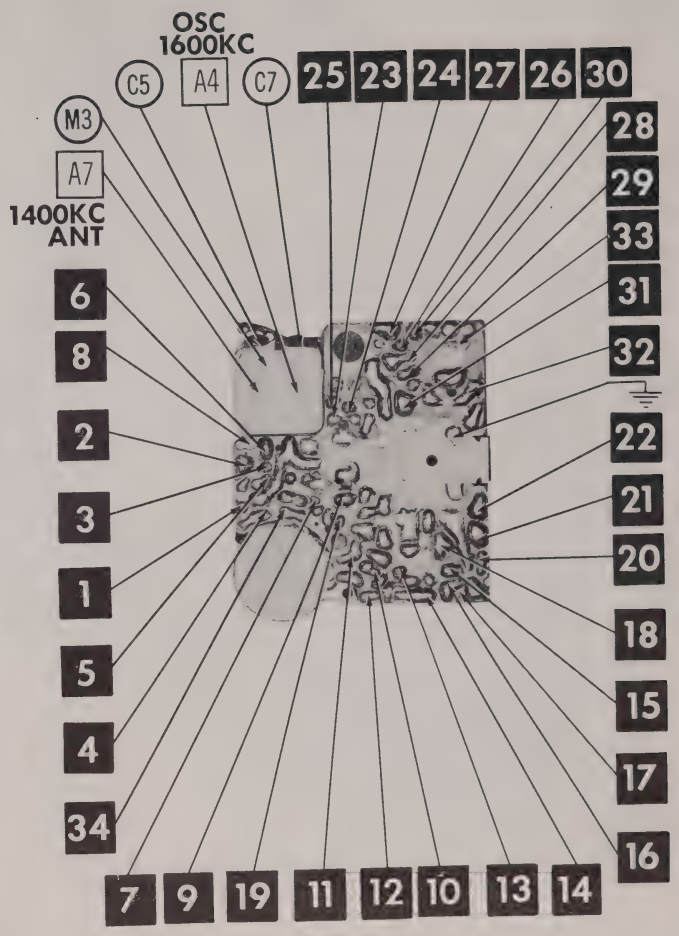


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SONY PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	1-401-072					
L2	Osc.	1-405-054					
L3	1st IF	1-403-057					
L4	2nd IF	1-403-058					
L5	3rd IF	1-403-059					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SONY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5	1	1-423-021					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SONY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	400Ω CT	6-8Ω	1-427-025					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SONY PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω	1-502-021		

BATTERIES

ITEM No.	VOLTAGE	SONY PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	BL-006B		2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		SONY PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1T23G			1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	SONY PART No.	NOTES
M3	Tuning Cap	1-151-033	2 Gang
	Earphone	ME-12	

CABINETS & CABINET PARTS

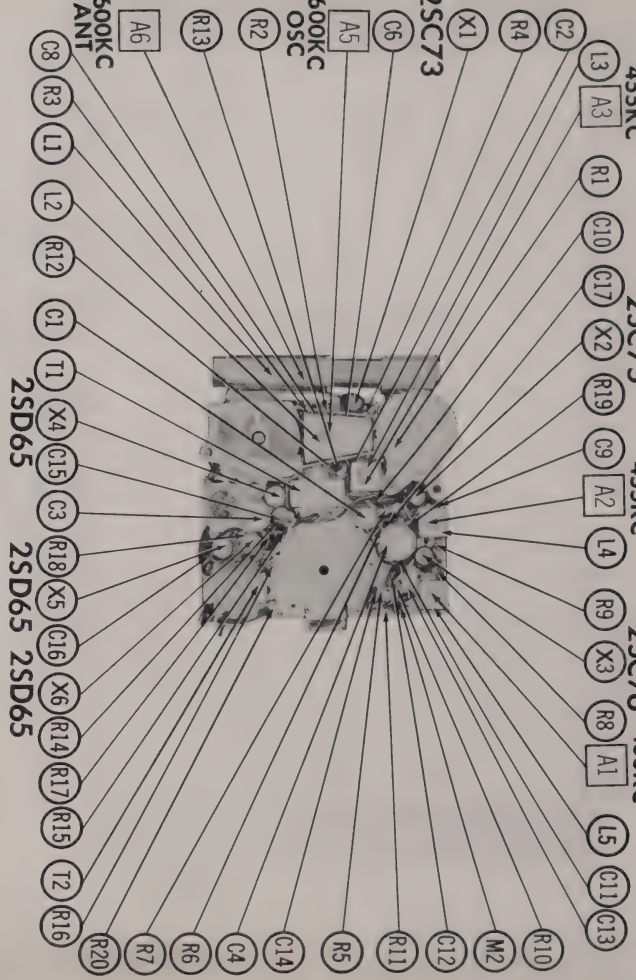
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial	3-803-029	Plate
Knob	3-803-003	Tuning
Knob	3-803-004	Volume
Cabinet	3-803-001	

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

WEBCOR MODEL ED-2150

WEBCOR MODEL ED-2150

WEBCOR MODEL ED-2150

TRADE NAME	Webcor Model ED-2150
MANUFACTURER	Webcor, Inc., 912 W. North Ave., Chicago 22, Illinois
TYPE SET	AC Operated 6 Tube Stereo Tape Recorder
POWER SUPPLY	110–120 Volts AC, 60 Cycles RATING RECORD: 31 Watts, .3 Amp. @117 Volts AC (Less Deck) PLAY: 25 Watts, .25 Amp. @117 Volts AC (Less Deck)

FOR SERVICE INFORMATION ON TAPE TRANSPORT MECHANISM — SEE WEBCOR 2810 — PHOTOFACT SET 458 FOLDER 17

ADJUSTMENT

VU METER ADJUSTMENT

Connect the output of an Audio generator to the "Mic Input Ch. 1". jack. Turn the tape deck on and set "Vol. 1" to 3/4ths full volume. Depress the "Record Safety Lock" and move slightly to right to lock in place. Turn Monitor control fully clockwise. Connect the AC VTVM (min. 11 meg input resistance) to "External Amp. Ch. 1" jack. Turn Meter Selector control to "Ch. 1". Adjust output of signal generator for approximately 2 volts at 1000∿ on VTVM. Adjust "Meter Level" control until VU meter reads 100% (0 db).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KQ422

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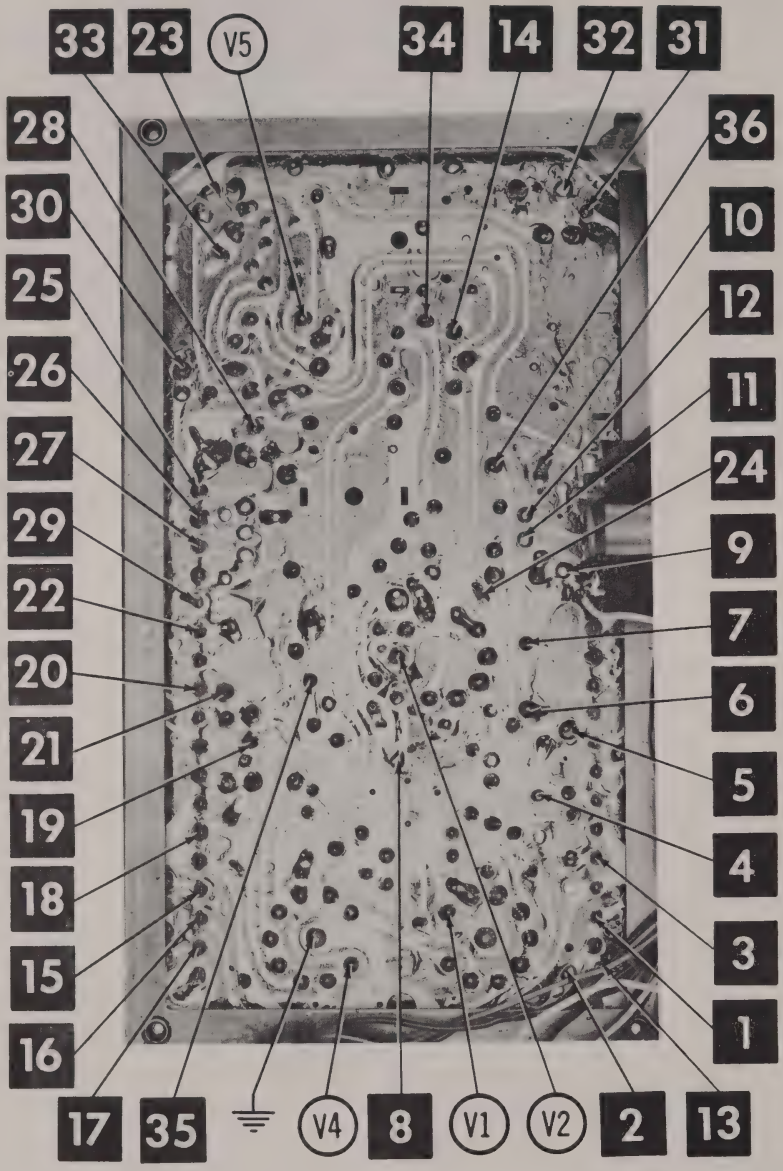
SET 535 FOLDER 15



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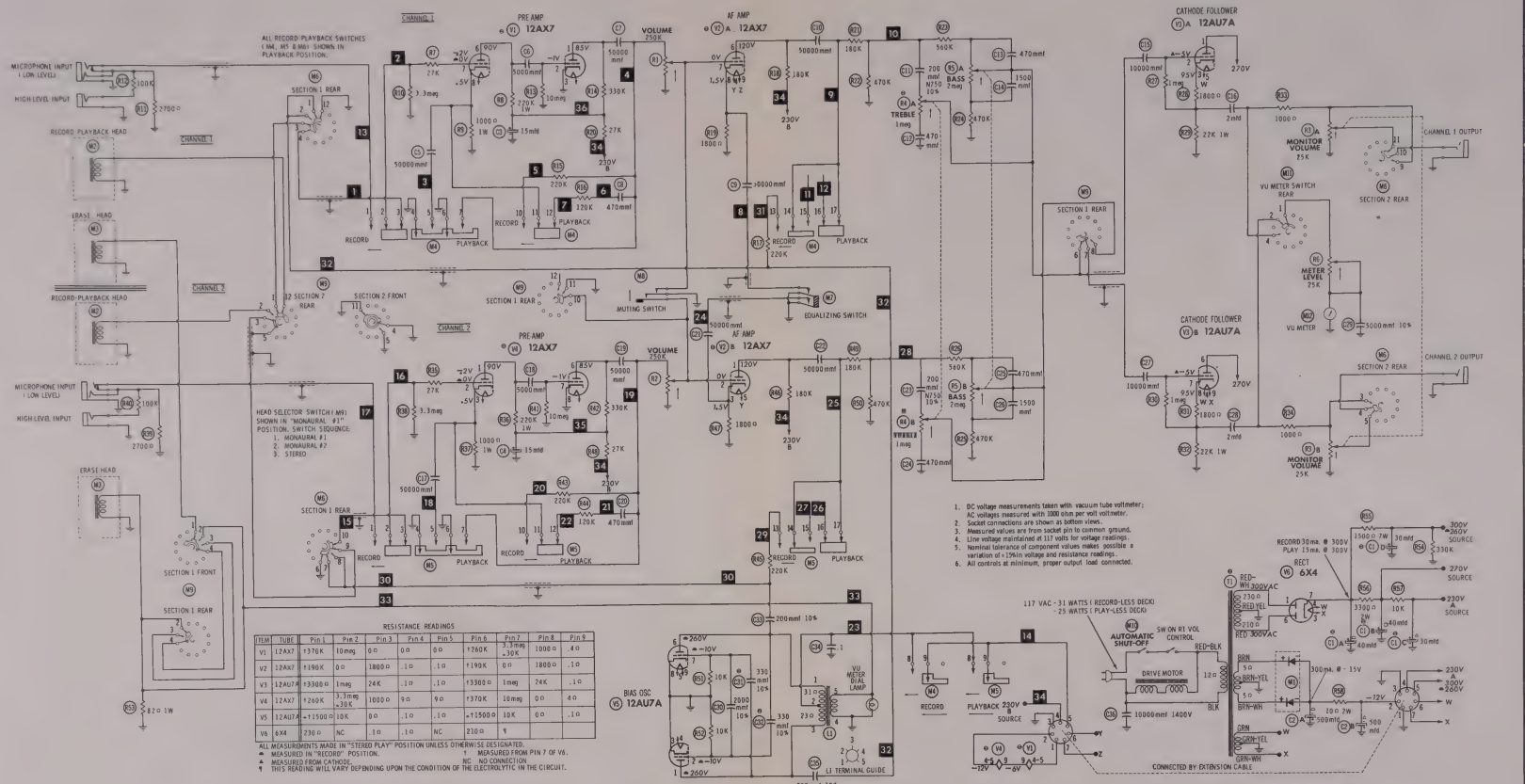
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†370K	10meg	0Ω	0Ω	0Ω	†260K	3.3meg ‡30K	1000Ω	4Ω
V2	12AX7	†190K	0Ω	1800Ω	.1Ω	.1Ω	†190K	0Ω	1800Ω	.1Ω
V3	12AU7A	†3300Ω	1meg	24K	.1Ω	.1Ω	†3300Ω	1meg	24K	.1Ω
V4	12AX7	†260K	3.3meg ‡30K	1000Ω	9Ω	9Ω	†370K	10meg	0Ω	4Ω
V5	12AU7A	▲+1500Ω	10K	0Ω	.1Ω	.1Ω	▲+1500Ω	10K	0Ω	.1Ω
V6	6X4	230Ω	NC	.1Ω	.1Ω	NC	210Ω	¶		

ALL MEASUREMENTS MADE IN "STEREO PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "RECORD" POSITION.
▲ MEASURED FROM CATHODE.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE™

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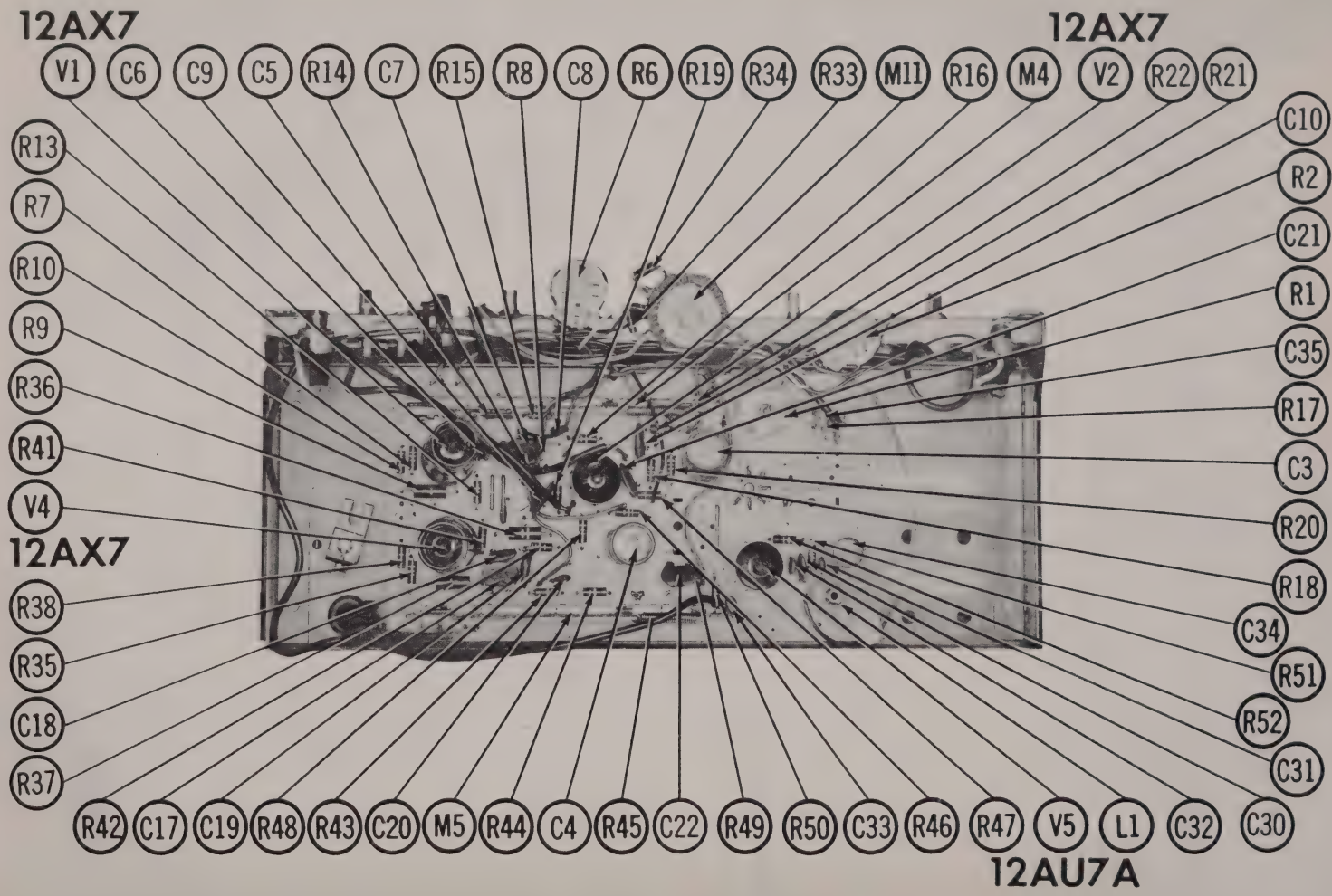
WEBCOR MODEL ED-2150



AMP CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC / RAYTHEON / SYLVANIA)
V1	Channel 1 Preamp.	12AX7 (7025) *
V2	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7 (7025) *
V3	Channel 1 Cath. Follower - Channel 2 Cath. Follower	12AU7A
V4	Channel 2 Preamp.	12AX7 (7025) *
V5	Bias Oscillator	12AU7A
V6	Rectifier	6X4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA WEBCOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	30P396	AFH4-18-40	D0176	FP447.5	TMQ-4649	TVL-4774	①
B	■40	450							
C	▲30	450							
D	30	450							
C2A	▲500	20	30P356			TC2505			
B	▲500	20				TC2505			
C3	15	300	30P281	PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C4	15	300	30P281	PRS1640	BR1635	TC64	TD-16-350	TVA-1607	

① In some versions, C1A, C1B and C1C may be a 40-40-40 mfd (Part #30P336) and C1D may be a separate unit (Part #30P403).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C6	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C7	50000		BPD-05	DD-503	CUB4S5	4DP-3-503	GP150	5HK-S50
C8	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C9	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C10	50000		BPD-05	DD-503	CUB4S5	4DP-3-503	GP150	5HK-S50
C11	200 N750 10%		N750-DI 200	DTN-200	C10T2U	CCTN-201	CN7-320	10TCU-T20
C12	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C13	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C14	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	2mfd 200V		P282Z-2.0		WMF2W2E			
C17	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C18	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C19	50000		BPD-05	DD-503	CUB4S5	4DP-3-503	GP150	5HK-S50
C20	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C21	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C22	50000		BPD-05	DD-503	CUB4S5	4DP-3-503	GP150	5HK-S50
C23	200 N750 10%		N750-DI 200	DTN-200	C10T2U	CCTN-201	CN7-320	10TCU-T20
C24	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C25	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C26	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	2mfd 200V		P282Z-2.0		WMF2W2E			
C29	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C30	2000 10%		DI-2000		5R5D2	CCD-202	GP220	10TS-D20
C31	330 10%	Note 1	DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C32	330 10%	Note 1	DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C33	200 10%		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C34	.1 400V		P415IN-1	DF-104	BC6P1J	4DP-3-104	ACE401	4SE-P10
C35	200 10%		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C36	10000 1400V		DAC-27	DDI6-103	HVE16S1	16DP-3-103	2HV-110	BL-S10

Note 1. Late versions use 350mmf in this application (Part Number 30P419).

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WEBCOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250K	½	31P177	B-51	A47-250K-Z	Q13-130	U44	Volume, Channel 1
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power On-Off
R2A	250K	½	31P175	B-51	A47-250K-Z	Q13-130	U44	Volume, Channel 2
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	25K	½	31P180	B-25				Monitor Volume, Channel 1
B	25K	½		SR-25				Monitor Volume, Channel 2
R4A	1meg	½	31P178 ①	B-70	AD47-1meg-Z		FA16A	Treble, Channel 1
B	1meg	½		SR-70	Not Req.		RU16A	Treble, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R5A	2meg	½	31P179	B-76	AD47-2meg-Z		FA26A	Bass, Channel 1
B	2meg	½		SR-76	Not Req.		RU26A	Bass, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R6A	25K	½	31P182	AB-26	A47-25K-S	B11-120	SU-29	Meter Level
B	Shaft			AK-1	FKS-1/4	SK2	Not Req.	

① Some versions may use 2meg Treble Part #31P179.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	27K			
R8	220K 1W			
R9	1000Ω 1W			
R10	3.3meg			
R11	2700Ω			
R12	100K			
R13	10meg			
R14	330K			
R15	220K			
R16	120K			
R17	220K			
R18	180K			
R19	1800Ω			
R20	27K			
R21	180K			
R22	470K			
R23	560K			
R24	470K			
R25	470K			
R26	560K			
R27	1meg			
R28	1800Ω			
R29	22K 1W			
R30	1meg			
R31	1800Ω			
R32	22K 1W			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R33	1000Ω			
R34	1000Ω			
R35	27K			
R36	220K 1W			
R37	1000Ω 1W			
R38	3.3meg			
R39	2700Ω			
R40	100K			
R41	10meg			
R42	330K			
R43	220K			
R44	120K			
R45	220K			
R46	180K			
R47	1800Ω			
R48	27K			
R49	180K			
R50	470K			
R51	10K			
R52	10K			
R53	82Ω 1W			
R54	330K			
R55	1500Ω 7W	PW-7-1500	7W-SQ-1500	
R56	3300Ω 2W			
R57	10K			
R58	10Ω 2W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA WEBCOR PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Bias Osc.	65P152					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
				WEBCOR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC. 1	SEC. 2						
T1	117V @ .3A	520VCT @ .030A DC	28VCT @ .300A DC	68P090-1 ①					① Alternate Part # 68P090
	SEC. 3	SEC. 4	SEC. 5						
	6.3VCT @ 1.5A								

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	WEBCOR PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.300A	65P153 *		3W33-1CN1-RV*		* Dual Selenium

MISCELLANEOUS

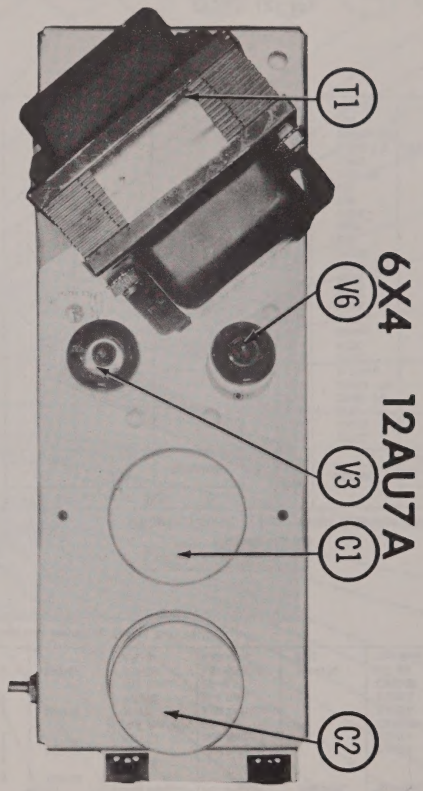
ITEM No.	PART NAME	WEBCOR PART No.	NOTES
M2	Head	65P160	1/4 Track Stereo Record-Playback
M3	Head	11X2272	1/4 Track Stereo Erase
M4	Switch	32P152	Record-Playback (Slide Type)
M5	Switch	32P152	Record-Playback (Slide Type)
M6	Switch	32P160	Record-Playback (Rotary Type)
M7	Switch	32P153	Equalizing
M8	Switch	32P131	Muting
M9	Switch	32P158	Head (Rotary Type)
M10	Switch	32P156-3	Automatic Shutoff
M11	Switch	32P161	VU Meter
M12	VU Meter	65P161	

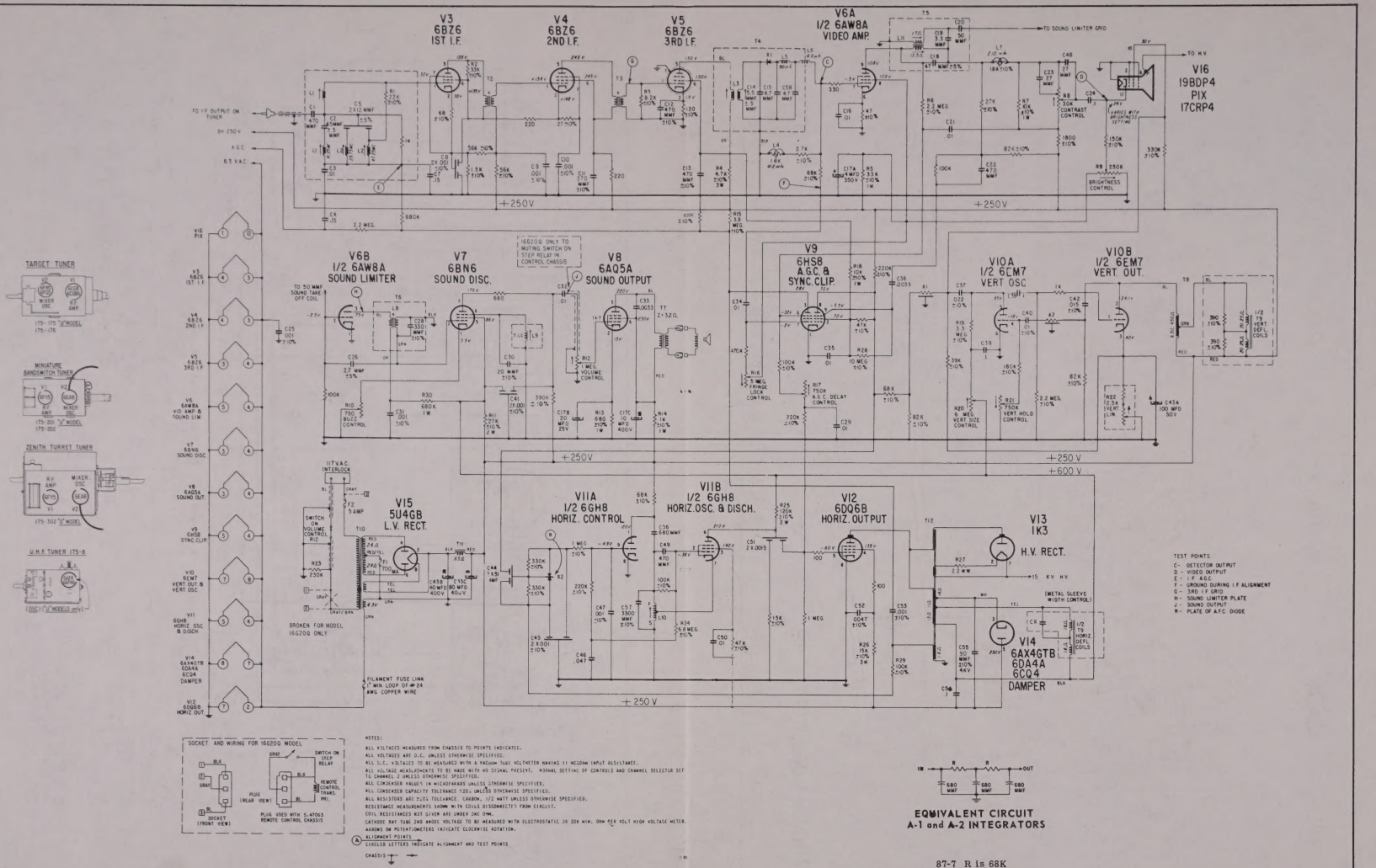
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

POWER CHASSIS—TOP VIEW



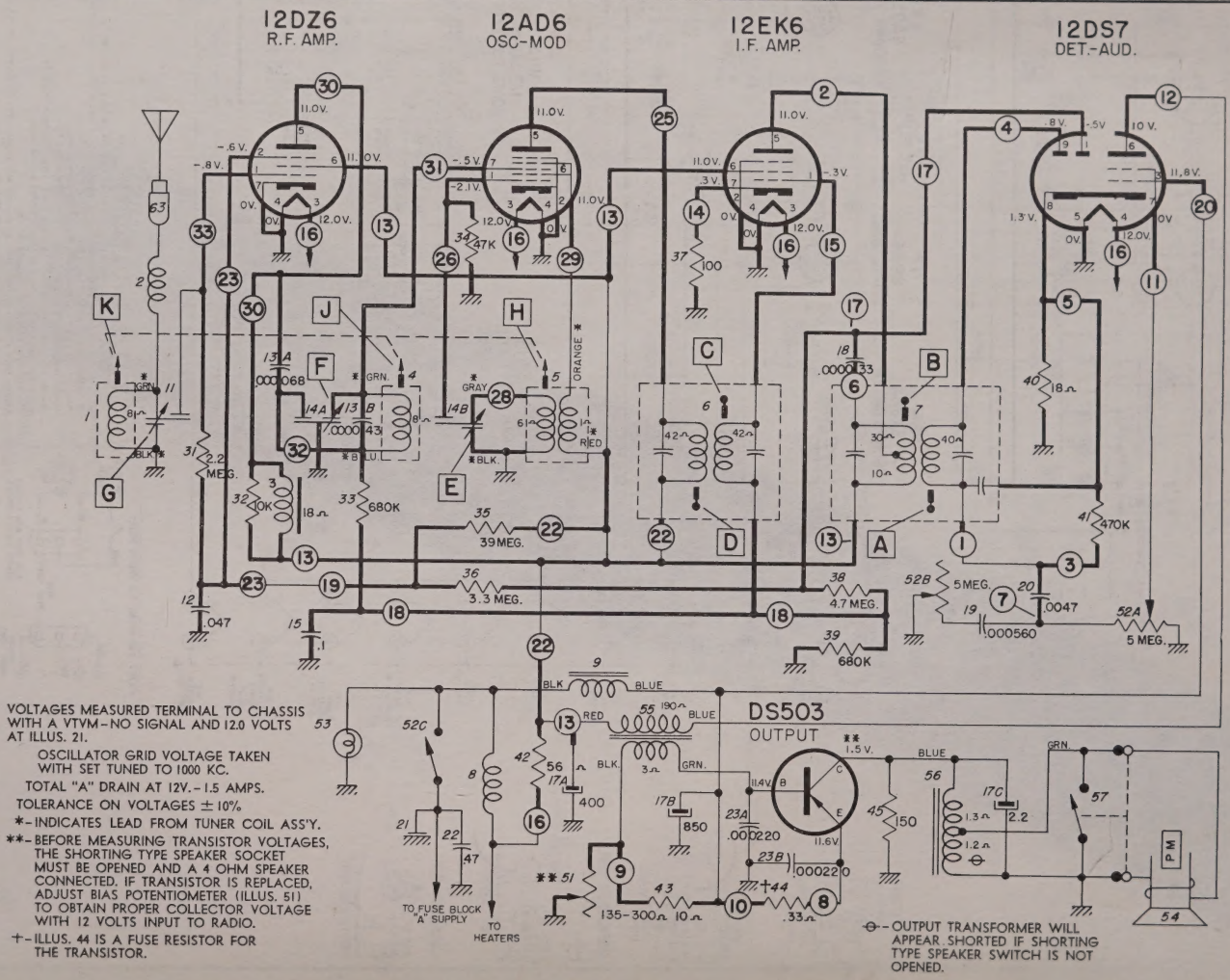

V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6BZ6 3RD I.F.
V6A 1/2 6AW8A VIDEO AMP.
V16 19BDP4 PIX 17CRP4
V6B 1/2 6AW8A SOUND LIMITER
V7 6BN6 SOUND DISC.
V8 6AQ5A SOUND OUTPUT
V9 6HS8 A.G.C. & SYNC. CLIP.
V10A 1/2 6EM7 VERT. OSC.
V10B 1/2 6EM7 VERT. OUT.
V15 5U4GB L.V. RECT.
V11A 1/2 6GH8 HORIZ. CONTROL
V11B 1/2 6GH8 HORIZ. OSC. & DISCH.
V12 6DQ6B HORIZ. OUTPUT
V13 1K3 H.V. RECT.
V14 6AX4GTB 6DA4A 6CQ4 DAMPER
+250V
+600 V
TARGET TUNER
MINIATURE BANDSWITCH TUNER
ZENITH TURRET TUNER
U.H.F. TUNER (75-8)
SOCKET AND WIRING FOR 16G20Q MODEL
EQUIVALENT CIRCUIT A-1 and A-2 INTEGRATORS

ZENITH MODELS G2101C, CU, F, FU, G2102L, LU, R, RU, W, WU,
G2120E, EU, M, MU, R, RU, W, WU, G2213G (CH. 16G20, Q, QU, U)

87-7 R is 68K
87-8 R is 82K

Schematic Diagram Courtesy of Zenith Radio Corporation

CHEVROLET (CORVAIR) MODEL 988460


12DZ6
R.F. AMP.
12AD6
OSC-MOD
12EK6
I.F. AMP.
12DS7
DET.-AUD.
DS503
OUTPUT
VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM-NO SIGNAL AND 12.0 VOLTS AT ILLUS. 21.
OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.
TOTAL "A" DRAIN AT 12V.-1.5 AMPS.
TOLERANCE ON VOLTAGES ± 10%
*-INDICATES LEAD FROM TUNER COIL ASS'Y.
**-BEFORE MEASURING TRANSISTOR VOLTAGES, THE SHORTING TYPE SPEAKER SOCKET MUST BE OPENED AND A 4 OHM SPEAKER CONNECTED. IF TRANSISTOR IS REPLACED, ADJUST BIAS POTENTIOMETER (ILLUS. 51) TO OBTAIN PROPER COLLECTOR VOLTAGE WITH 12 VOLTS INPUT TO RADIO.
+-ILLUS. 44 IS A FUSE RESISTOR FOR THE TRANSISTOR.
-O-OUTPUT TRANSFORMER WILL APPEAR SHORTED IF SHORTING TYPE SPEAKER SWITCH IS NOT OPENED.
TO FUSE BLOCK "A" SUPPLY
TO HEATERS

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.